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SEPTEMBER 1971
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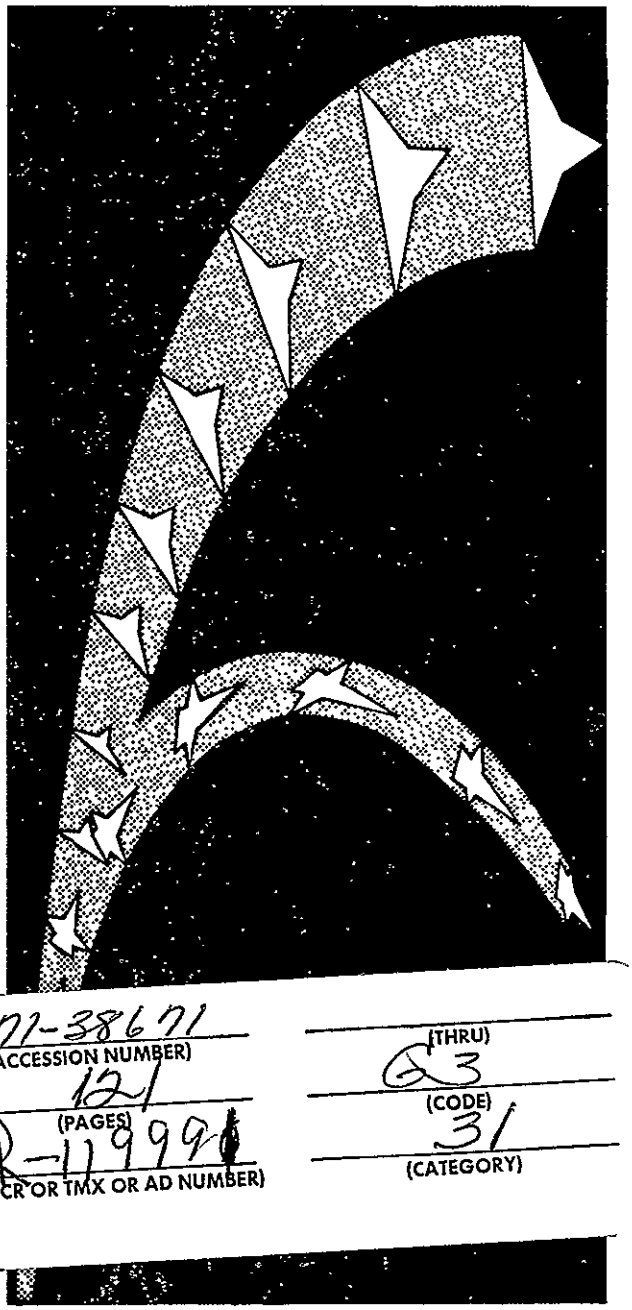

—SPACE SHUTTLE—

DETERMINATION OF THE STATIC STABILITY CHARACTERISTICS OF THE 0.00285 - SCALE MDAC PARALLEL BURN LAUNCH CONFIGURATION

by

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and

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MSFC 14 - INCH
TRISONIC WIND TUNNEL

MARSHALL
SPACE FLIGHT CENTER

SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

CONTRACT NAS8-4016
MARSHALL SPACE FLIGHT CENTER

SPACE DIVISION CHRYSLER CORPORATION

NASA

NASA Series Number: S-1040

DMS-DR-1166
SEPTEMBER, 1971

SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: MDAC Parallel Burn Launch Configuration, 0.00285 Scale

TEST PURPOSE: To Determine the Static Stability Characteristics of the Configuration at a Mach Range 0.6 to 4.96

TEST FACILITY: MSFC 14-Inch Trisonic Wind Tunnel

TESTING AGENCY: MSFC

TEST NO. & DATE: MSFC 501; August 9, 1971

FACILITY COORDINATOR: Jim Weaver - NASA/MSFC

PROJECT ENGINEER(S): Kenneth L. Blackwell - NASA/MSFC

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CONTRACT NAS 8-4016 AMENDMENT 153 DRL 184 - 58

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ABSTRACT

Experimental aerodynamic wind tunnel investigations were conducted by NASA/MSFC during August, 1971 on several launch configurations of the MDAC parallel burn vehicle. These tests, conducted in the NASA/MSFC 14 x 14 inch Trisonic Wind Tunnel, were in support of the MSFC evaluation of the MDAC parallel burn vehicle whose performance is reported in the McDonnell Douglas report MDC E0376, "Phase B System Study, Final Report, External LH_2 Tank Study".

Six component aerodynamic force and moment coefficient data are presented in the body axis system and cover a Mach number range from 0.6 to 4.96 over an angle of attack range from -10° to 10° at zero degrees sideslip and from -4° to 10° sideslip at 0° angle of attack. Thirty test hours were required to accomplish the test.

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SUMMARY OF SADSAC NOMENCLATURE - AERODYNAMIC FORCE AND MOMENT COEFFICIENTS

COEFFICIENT	COEFFICIENT NAME	SADSAC NOMENCLATURE		
		BODY AXIS	STABILITY AXIS	WIND AXIS
C_A	Total Axial Force	CA	-	-
C_{AB}	Base Axial Force	CAB	--	-
C_{AF}	Forebody Axial Force	CAF	-	-
C_D	Total Drag Force	-	CD	CDTOTL
C_{DB}	Base Drag Force	-	CDB	CDBASE
C_{DF}	Forebody Drag Force	-	CDF	CDFORE
C_L	Lift Force	-	CL	CL
C_N	Normal Force	CN	-	-
C_Y	Side Force	CY	CY	CC
C_ℓ	Rolling Moment.	CBL	CSL	CWL
C_m	Pitching Moment	CLM	CLM	CPM
C_n	Yawing Moment	CYN	CLN	CLN
L/D	Lift-To-Drag Force Ratio	-	L/D	CL/CD
L/D	Lift-To-Forebody Drag Force Ratio	-	L/DF	CL/CDF
N/A	Normal-To-Axial Force Ratio	N/A	-	-
N/A	Normal-To-Forebody Axial Force Ratio	CN/CAF	-	-

CONFIGURATIONS INVESTIGATED

The configurations tested consisted of the following components;

Booster: (refer to Figure 4)

B	fuselage
W	delta planform wing
C	canard
V_u	upper vertical tail
V_L	lower vertical tail

Orbiter: (refer to Figure 5)

B	fuselage
W	delta planform wing
V	body centerline mounted vertical tail
T	external liquid hydrogen tanks

Launch configuration one (L_1) consists of the orbiter mated to the booster in "piggyback" fashion as shown in Figures 1 and 3. Launch configuration two (L_2) consists of the orbiter mated to the booster in belly-to-belly fashion as shown in Figure 2.

Pertinent dimensional information for each of the model components is given in the Model Component Description Sheets which follow the Figures. The Dataset Collation Sheet which follows immediately show the various configurations tested.

TEST MSFC 501 DATA SET/RUN NUMBER

COLLATION SUMMARY

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES				NO. of RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE) .6	.8	.9	1.0	1.1	1.2	2.96	4.00	4.96				TEST RUN NUMBERS
R43011	L_1	A	O					9	1/0	2/0	3/0	4/0	5/0	6/0	9/0	10/0	11/0				
R43012	L_1	O	B					9	12/0	13/0	14/0	15/0	16/0	17/0	20/0	21/0	22/0				
R43022	L_2	O	B					8	34/0	35/0	36/0	37/0	38/0		42/0	43/0	44/0				
R43021	L_2	A	O					8	23/0	24/0	25/0	26/0	27/0		31/0	32/0	33/0				
R43001	B	A	O					9	45/0	46/0	47/0	48/0	49/0	50/0	53/0	54/0	55/2				
R43002	B	O	B					6	56/0	57/0	58/0	59/0	60/0	61/0							

1 7 13 19 25 31 37 43 49 55 61 67 75 76

CLM ICN ICY ICBL ICYN CAF CAB CABΦ CPB1 CAT 10

COEFFICIENTS: → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

αA = -10, -8, -6, -4, -2, -1, 0, 1, 2, 4, 6, 8, 10

βB = -4, -2, 0, 2, 4, 6, 8, 10

NASA-MSFC-MAF

TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Trisonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum suction and perforated walls. Mach numbers of 1.44, 1.93 and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F. The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle of attack range of 20° (±10°). Sting offsets are available for obtaining various maximum angles of attack up to 25°.

TEST CONDITIONS

Table I gives the tunnel conditions which prevailed during the test and states the accuracy of the model balance.

TABLE I

TEST CONDITIONS
TEST MSFC 501

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.6	4.8×10^6/IN	4.1	100
0.8	5.7×10^6/IN	6.1	100
0.9	6.0×10^6/IN	7.0	100
1.0	6.2×10^6/IN	7.8	100
1.1	6.4×10^6/IN	8.3	100
1.2	6.5×10^6/IN	8.7	100
2.99	9.0×10^6/IN	10.3	100
4.00	6.8×10^6/IN	5.5	100
4.96	5.4×10^6/IN	3.1	100

BALANCE UTILIZED: MSFC #227

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	250#		
SF	80#		
AF	25 #		
PM	308 IN-#		
YM	112 IN-#		
RM	50 IN-#		

COMMENTS:

DATA REDUCTION

The aerodynamic forces and moments measured by the balance have been reduced to coefficient form in the body axis system using the following reference dimensions.

S_{REF} = reference area = 4.6786 square inches

ℓ_{REF} = b_{ref} = reference body length = 6.0278 inches

Moments are referenced to the booster nose, see Figure 3.

Model base pressures were measured and utilized to correct the balance measured axial force coefficient as follows:

$$C_{A_F} = C_A - C_{A_B}$$

where

C_{A_F} = corrected axial force coefficient

C_A = measured axial force coefficient

C_{A_B} = base axial force coefficient

For the launch configurations, the average base pressure measured on the orbiter was multiplied by the orbiter base area and added to the average base pressure measured on the booster multiplied by the booster base area; i.e.,

$$C_{A_B} = -\left[(p_{b_{ORB}} - p_\infty)/q_\infty\right] A_{b_{ORB}}/S_{REF} - \left[(p_{b_{Boost}} - p_\infty)/q_\infty\right] A_{b_{Boost}}/S_{REF}$$

For the booster alone data only the booster base pressures and area was utilized.

SUMMARY DATA PLOT INDEX

PLOT TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	NOMINAL MACH RANGE	NOMINAL ALPHA (α) SCHEDULE (DEG.)	NOMINAL BETA (β) SCHEDULE (DEG.)	PAGES
Longitudinal and Lateral Stability - MDAC Parallel Burn Configuration	A	Configuration	0.6 to 4.96	-10° to 10°	0	1-27
	B	Configuration	0.6 to 4.96	0	-4° to 10°	28-54
	C	Configuration	0.6 to 4.96	-10° to 10°	0	55-80
	D	Configuration	0.6 to 4.96	0	0	81-85
	E	Configuration	0.6 to 4.96	0	-4° to 10°	86-117
	F	Configuration	0.6 to 4.96	0	0	118

SUMMARY DATA PLOT INDEX

(CONTINUED)

PLOTTED COEFFICIENTS SCHEDULE:

SCHEDULE A

CLM vs. α
CN vs. α
CA vs. α

SCHEDULE B

CY vs. β
CLN vs. β
CBL vs. β

SCHEDULE C

DCLM/DALPHA(CLMALF) vs. MACH
DCN/DALPHA(CNALFA) vs. MACH

SCHEDULE D

CLM(ALPHA=0) vs. MACH
CN(ALPHA=0) vs. MACH
CAF(ALPHA=0) vs. MACH
CAB(ALPHA=0) vs. MACH
CLM/CN(ALPHA=0) vs. MACH

SCHEDULE E

DCY/DBETA vs. MACH
DCLN/DBETA vs. MACH
DCSL/DBETA vs. MACH
DCBL/DBETA vs. MACH

SCHEDULE F

D(CLN/CY)(BETA=0) vs. MACH

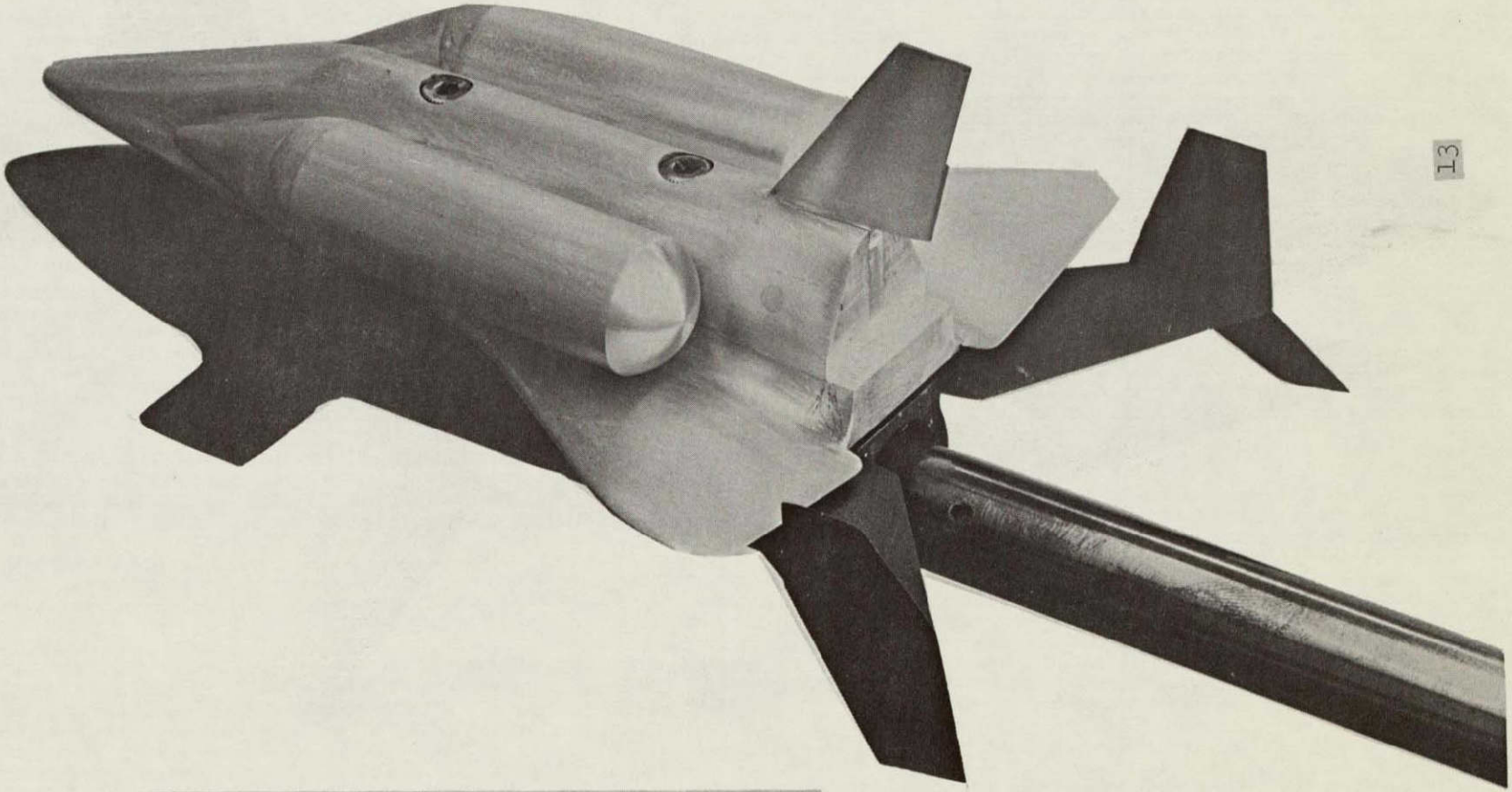


Figure 1 Photograph of Launch Configuration, L_1

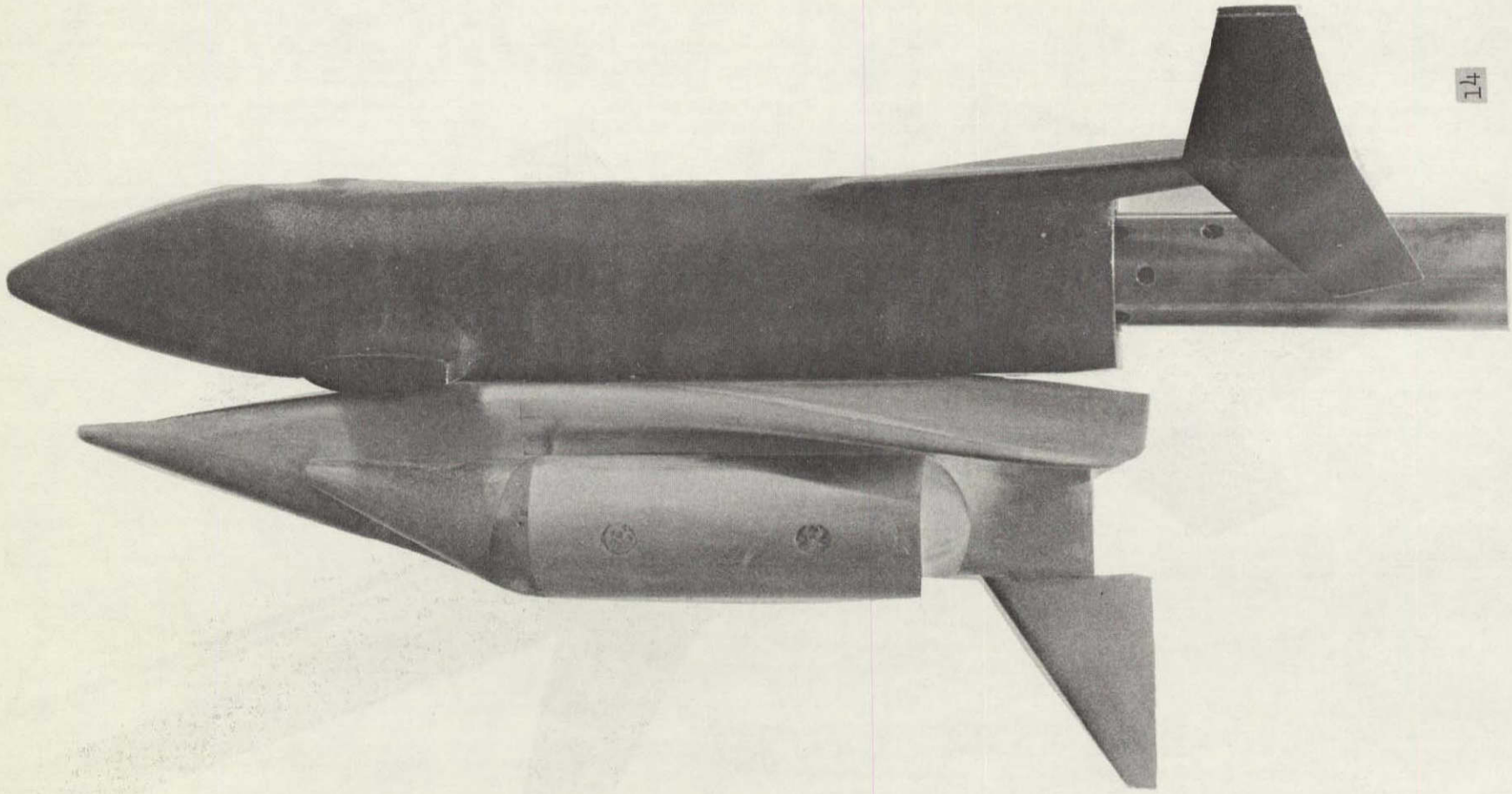


Figure 2 Photograph of Launch Configuration, L_2

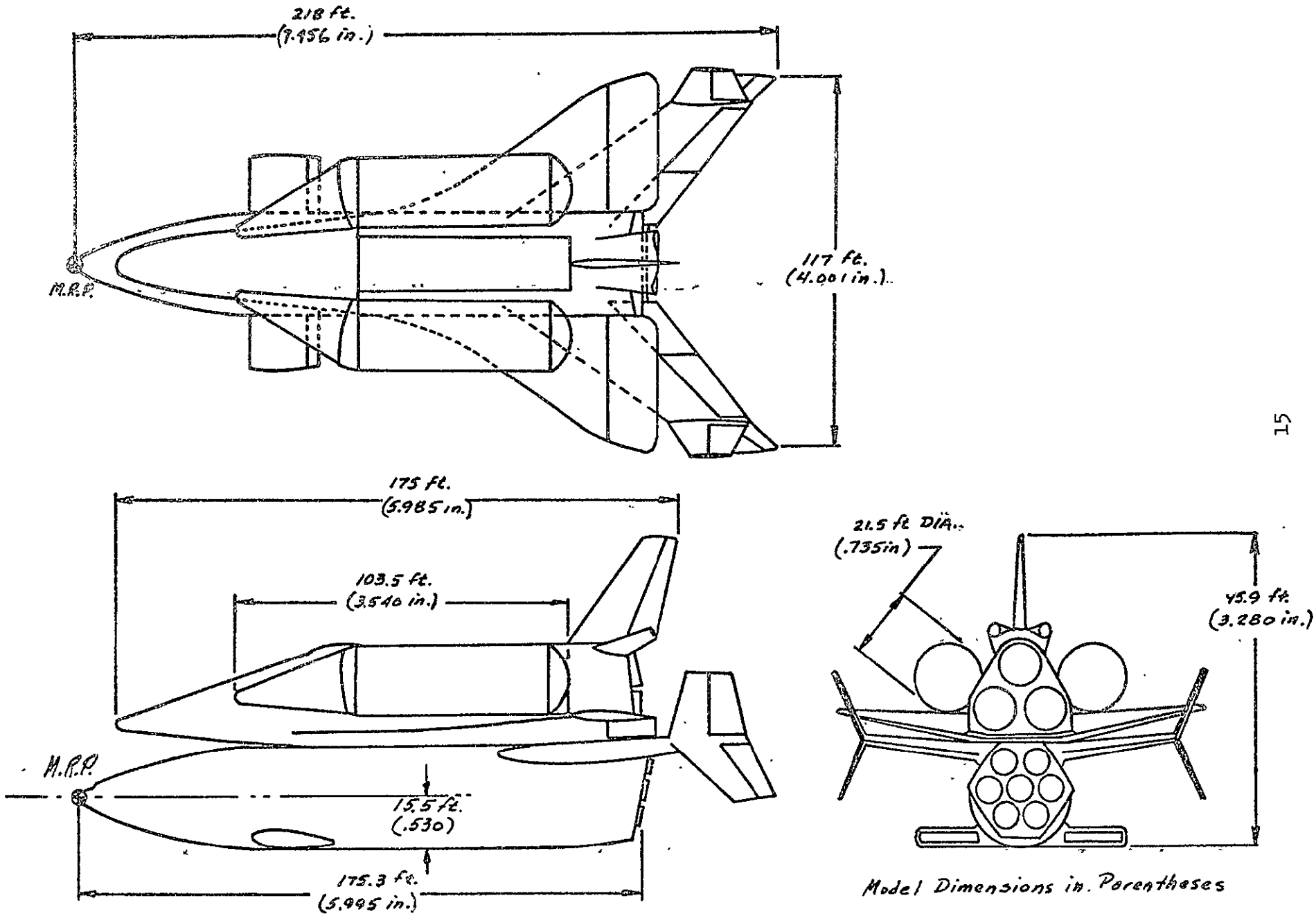


Figure 3: Launch Configuration Model Geometry (4)

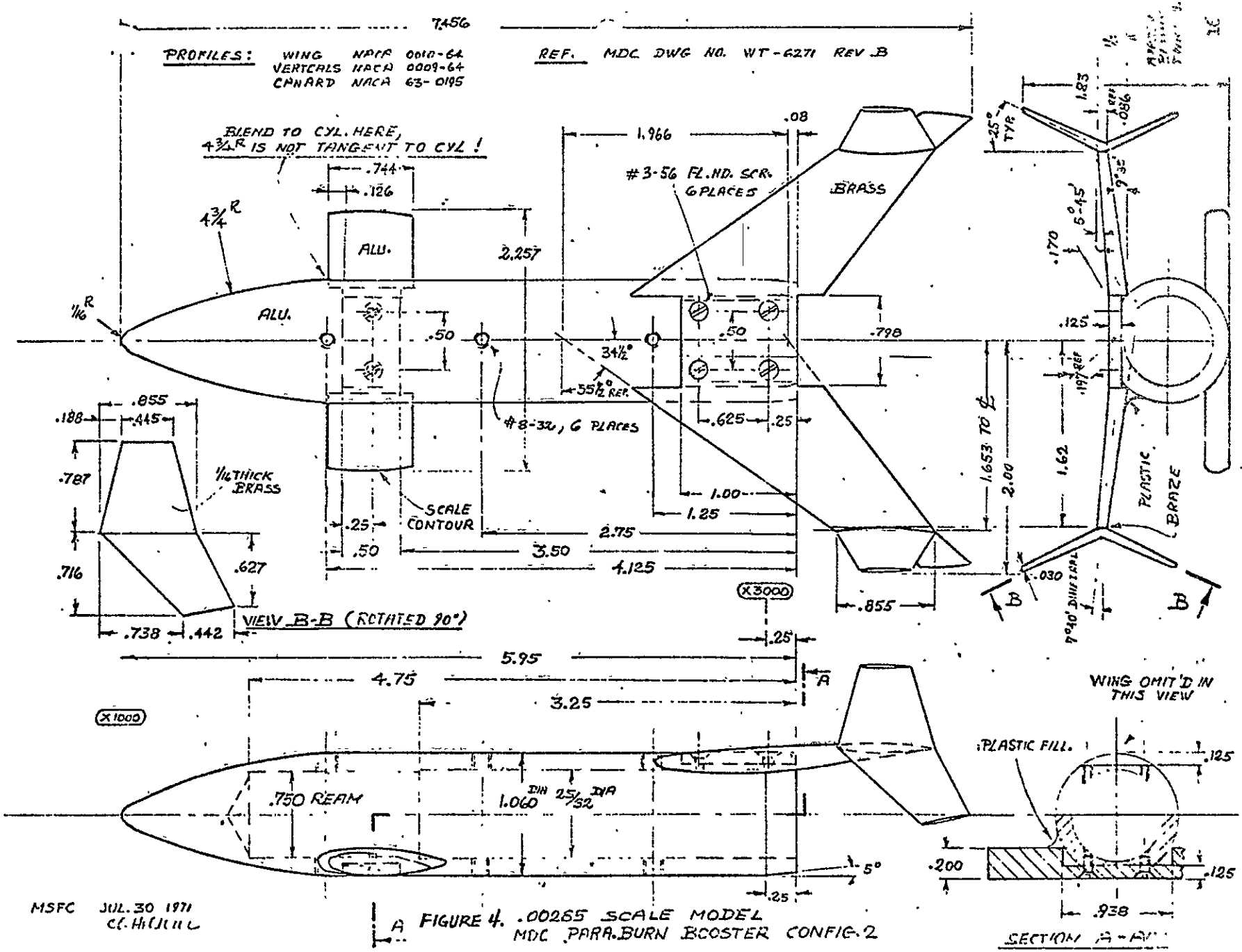


FIGURE 4. .00265 SCALE MODEL MDC PARA.BURN BOOSTER CONFIG. 2

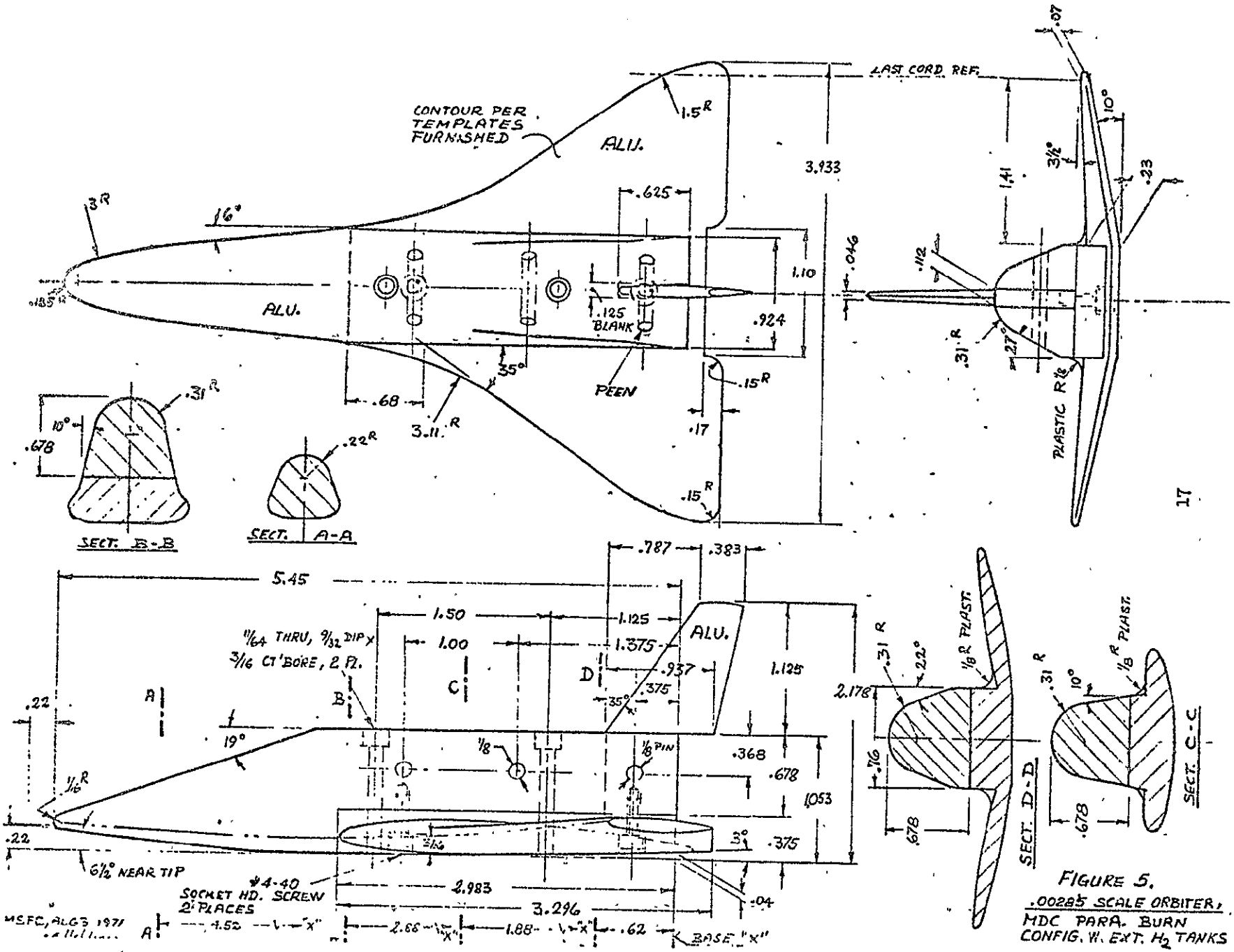


FIGURE 5.
.0028⅝ SCALE ORBITER,
MDC PARA. BURN
CONFIG. W. EXT. H_2 TANKS

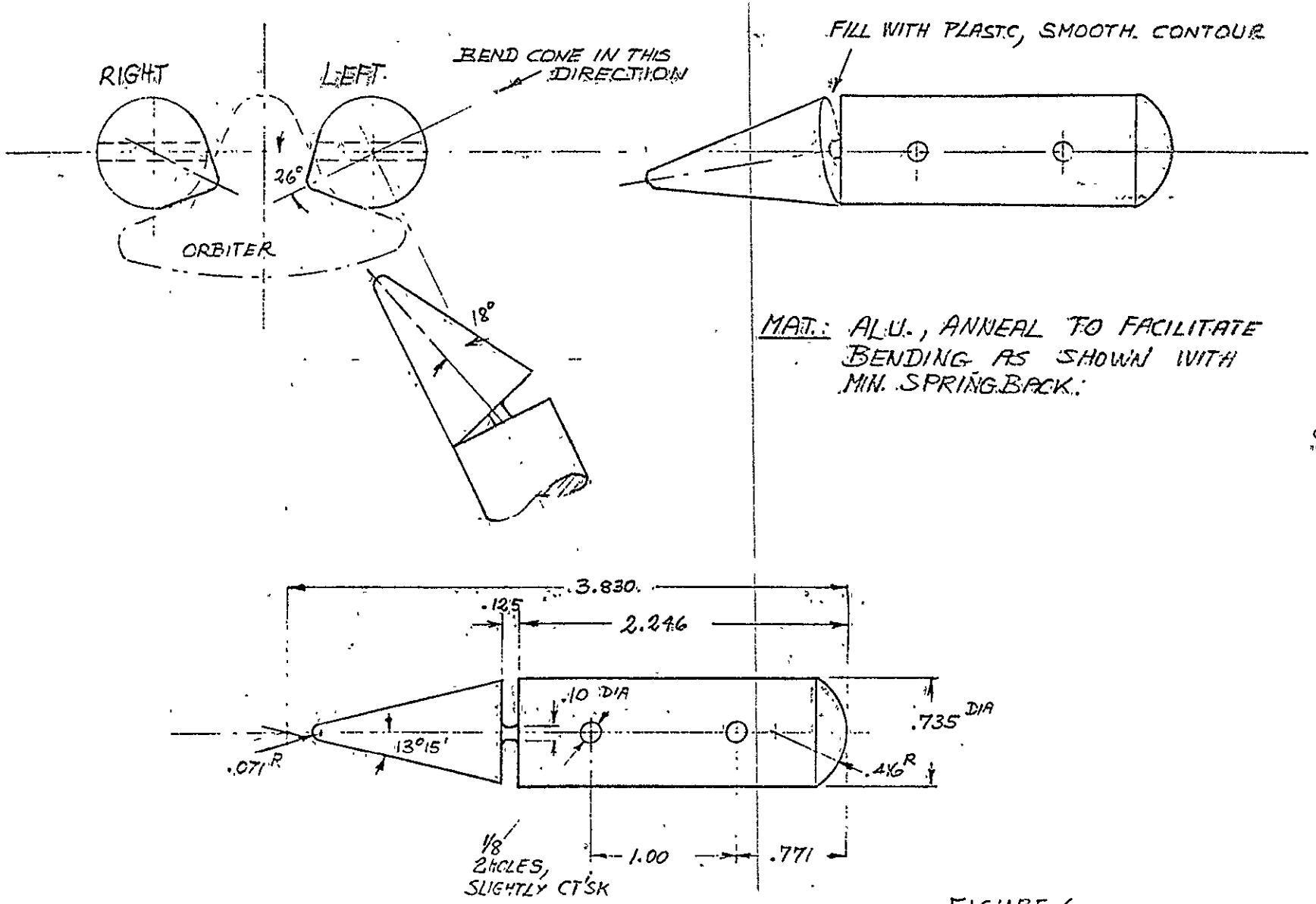


FIGURE 6.

EXTERNAL LIQU. HYDROG. TANKS FOR .00285 SCALE MDC PARA. BURN ORBITER

MSFC AUG 1, 1971
CC. McClure

Notes:

1. Positive directions of force coefficients moment coefficients, and angles are indicated by arrows.

2. For clarity, origins of wind and stability axes have been displaced from the center of gravity.

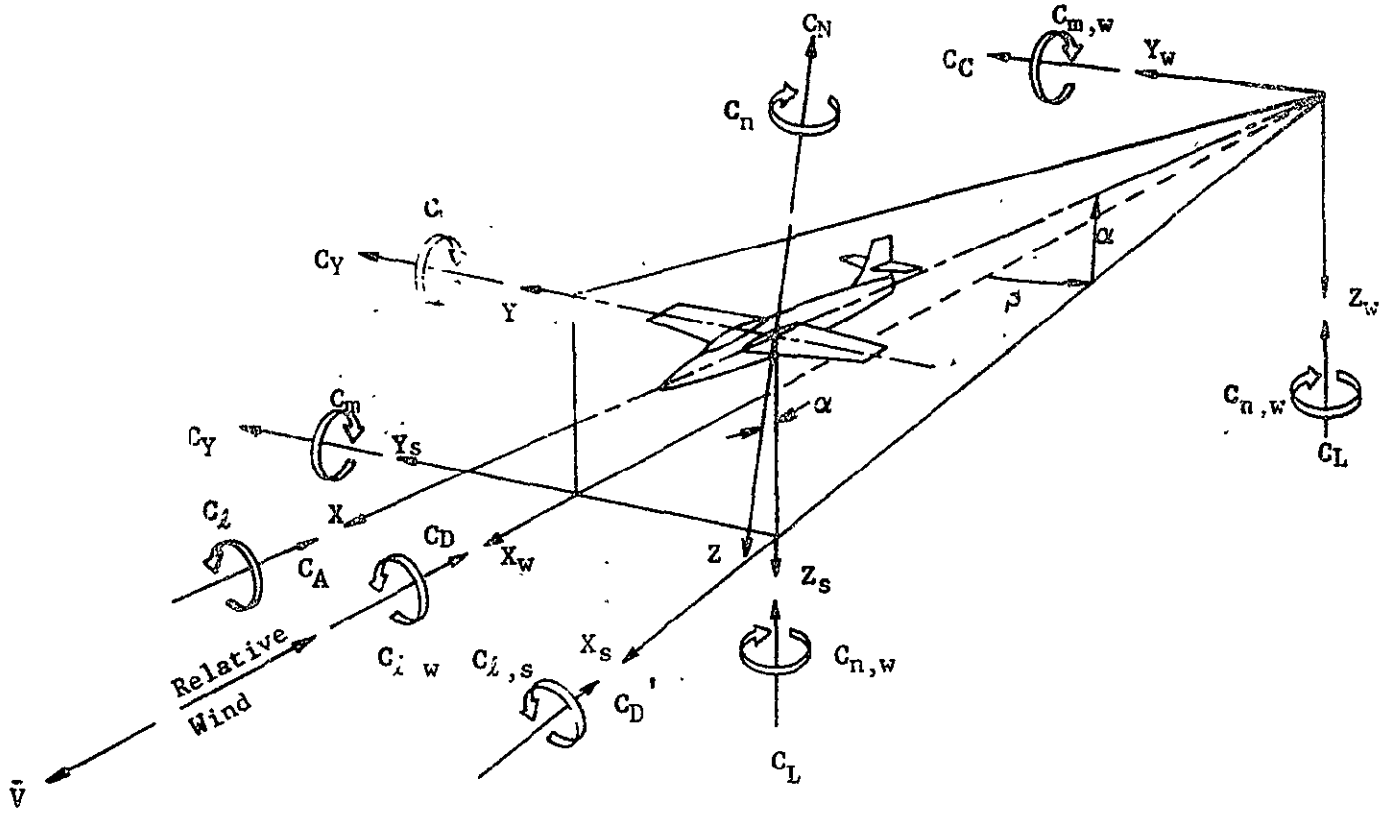


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

MODEL COMPONENT: BODY - Booster

GENERAL DESCRIPTION:

DRAWING NUMBER:

DIMENSIONS:		FULL-SCALE	MODEL SCALE
Length		17.6 ft	6.019 in
Max. Width		372 in @ Base	1.060 in
Max. Depth		390 in @ Base	1.112 in
Fineness Ratio		—	—
Area			
Max. Cross-Sectional		—	—
Planform (WING TO Y140)		4908 ft^2	5.737 in^2
Wetted excluding base, Wing to Y140		14.479 ft^2	16.926 in^2
Base	Projected	692 ft^2	0.8094 in^2
	True	702 ft^2	0.821 in^2

MODEL COMPONENT: Booster Wing

GENERAL DESCRIPTION:

DRAWING NUMBER: WT-6271 REV. B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform	2427 ft^2	2.837 in^2
Wetted Y140 TO Y580	5760 ft^2	6.733 in^2
Span (equivalent) (Theo.)	96.7 ft	3.307 in
Aspect Ratio	2.33	2.33
Rate of Taper	—	—
Taper Ratio	0.435	0.435
Diehedral Angle, degrees	7° 40'	7° 40'
Incidence Angle, degrees	1°	1°
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees		
Leading Edge	55.5°	55.5°
Trailing Edge	—	—
0.25 Element Line	—	—
Chords:		
Root (Wing Sta. 0.0)	57.5 ft	1.967 in
Tip, (equivalent)	25 ft	0.355 in
MAC	43.3 ft	1.481 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section		
Root	0010-64	0010 - 64
Tip	0010-64	0010 - 64
EXPOSED DATA		
Area Y186 to Y580 (Theo.)	2370 ft^2	
Span, (equivalent)	96.7 ft	3.307 in
Aspect Ratio	—	—
Taper Ratio	—	—
Chords		
Root	57.5 ft	1.967 in
Tip	25.0 ft	0.355 in
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: Booster - Upper Vertical

GENERAL DESCRIPTION:

DRAWING NUMBER: WT-6271 REVB

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform	437 ft^2	0.511 in^2
Wetted (UPPER & LOWER - 4 PLACES)	3360 ft^2	3.928 in^2
Span (equivalent) (TRUE)	276 in	0.787 in
Aspect Ratio	1.21	1.21
Rate of Taper	—	—
Taper Ratio	0.520	0.520
Dihedral Angle, degrees	—	—
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	0	0
Cant Angle (ROLL OUT FROM VERT.)	25°	25°
Sweep Back Angles, degrees		
Leading Edge	15°	15°
Trailing Edge	—	—
0.25 Element Line	—	—
Chords:		
Root (Wing Sta. 0.0)	300 in	0.855 in
Tip, (equivalent)	156 in	0.445 in
MAC	232 in	0.661 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section		
Root	0009-64	0009 - 64
Tip	0009-64	0009 - 64
EXPOSED DATA		
Area	437 ft^2	0.511 in^2
Span, (equivalent)	276 in.	0.787 in
Aspect Ratio	1.21	1.21
Taper Ratio	.520	0.520
Chords		
Root	300 in	0.855 in
Tip	156 in	0.445 in
MAC	232 in	0.663 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: Booster - Lower Vertical

GENERAL DESCRIPTION:

DRAWING NUMBER: WT-6271 REVB

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform	394 ft^2	0.461 in^2
Wetted (UPPER & LOWER • 4 PLACES)	3360 ft^2	3.928 in^2
Span (equivalent)	250 in	0.713 in.
Aspect Ratio	1.10.	1.10
Rate of Taper	—	—
Taper Ratio	0.583	0.583
Dihedral Angle, degrees	—	—
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	0	0
Cant Angle (Roll Out from Vertical)	25.°	25°
Sweep Back Angles, degrees		
Leading Edge	45°	45°
Trailing Edge	—	—
0.25 Element Line	—	—
Chords:		
Root (Wing Sta. 0.0)	300 in	0.855 in
Tip, (equivalent)	155 in	0.442 in.
MAC	232 in	0.661 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section		
Root	0009-64	0009-64
Tip	0009-64	0009-64
EXPOSED DATA		
Area	394 ft^2	
Span, (equivalent)	250 in	0.713 in.
Aspect Ratio	1.10	1.10
Taper Ratio	0.583	0.583
Chords		
Root	300 in	0.855 in
Tip	155 in	0.442 in
MAC	232 in	0.661 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: Booster - Canard

GENERAL DESCRIPTION:

DRAWING NUMBER: WT-6271 REVB

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform (THEO.)	1430 ft^2	1.672 in^2
Wetted (Including Fairing)	3061 ft^2	3.578 in^2
Span (equivalent)(THEO.)	66 ft	2.257 in
Aspect Ratio	3.04	3.04
Rate of Taper	0	0
Taper Ratio	—	—
Diehedral Angle, degrees	0	0
Incidence Angle, degrees	0	0
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees		
Leading Edge	0	0
Trailing Edge	0	0
0.25 Element Line	0	0
Chords:		
Root (Wing Sta. 0.0)	20 ft	0.684 in
Tip, (equivalent)	20 ft	0.684 in
MAC	20 ft	0.684 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section		
Root	63-019.5	63-019.5
Tip	63-019.5	63-019.5
EXPOSED DATA		
Area	980 ft^2	1.146 in^2
Span, (equivalent)	—	—
Aspect Ratio	3.04	3.04
Taper Ratio	1.0	1.0
Chords		
Root	20 ft	0.684 in
Tip	20 ft	0.684 in
MAC	20 ft	0.684 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: BODY - Orbiter

GENERAL DESCRIPTION: _____

DRAWING NUMBER: 899E0510651

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length	162.7 ft	5.564 in
Max. Width	27 ft	0.923 in
Max. Depth	30.8 ft	1.053 in
Fineness Ratio	—	—
Area		
Max. Cross-Sectional	—	—
Planform	3942 ft^2	4.608 in^2
Wetted	14,180 ft^2	16.576 in^2
Base	822 ft^2	0.9614 in^2

MODEL COMPONENT: Orbiter - Wing

GENERAL DESCRIPTION:

DRAWING NUMBER: 89E0510651

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform (THEO)	6300 ft^2	7.365 in^2
Wetted	8440 ft^2	9.866 in^2
Span (equivalent) (THEO.)	115 ft	3.933 in
Aspect Ratio	2.1	2.1
Rate of Taper	—	—
Taper Ratio	.143	0.143
Diehedral Angle, degrees	10°	10°
Incidence Angle, degrees	2°	2°
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees		
Leading Edge	55°	55°
Trailing Edge	—	—
0.25 Element Line	—	—
Chords:		
Root (Wing Sta. 0.0)	96.3 ft	3.293 in
Tip, (equivalent)	16.7 ft	0.571 in
MAC	65.1 ft	2.226 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section		
Root Y162	0007-63 OGLE	0007-63 OGLE
Tip	0012.4-63 OGEE	0012.4-63 OGEE
EXPOSED DATA		
Area	4050 ft^2	4.734 in^2
Span, (equivalent)	—	—
Aspect Ratio	—	—
Taper Ratio	—	—
Chords		
Root	—	—
Tip	—	—
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: Orbiter - Vertical

GENERAL DESCRIPTION: _____

DRAWING NUMBER: 899E0510651

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform (THEO)	6.36 ft²	0.743 in²
Wetted	1300 ft²	1,520 in²
Span (equivalent) (TRUE)	32.9 ft	1.125 in
Aspect Ratio	1.7	1.7
Rate of Taper	—	—
Taper Ratio	0.42	0.42
Diehedral Angle, degrees	—	—
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees		
Leading Edge	35°	35°
Trailing Edge	—	—
0.25 Element Line	—	—
Chords:		
Root (Wing Sta. 0.0)	27.4 ft	0.937 in
Tip, (equivalent)	11.2 ft	0.383 in
MAC	20.4 ft	0.698 in
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section		
Root	0012-64	0012-64
Tip	0012-64	0012-64
EXPOSED DATA		
Area	596 ft²	0.697 in²
Span, (equivalent)	—	—
Aspect Ratio	—	—
Taper Ratio	—	—
Chords		
Root	—	—
Tip	—	—
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: BODY - Orbiter Drop Tanks

GENERAL DESCRIPTION: _____

DRAWING NUMBER: 899E0510651

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length	103.5 ft	3.640
Max. Width	258 in	0.735 in
Max. Depth	258 in	0.735 in
Fineness Ratio	—	—
Area		
Max. Cross-Sectional	363 ft^2	0.424 in^2
Planform	—	—
Wetted	6100 ft^2	7.131 in^2
Base	363 ft^2	0.424 in^2

NOMENCLATURE

(General)

SYMBOL	SADSAC SYMBOL	DEFINITION
α	ALPHA	angle of attack, angle between the projection of the wind X_w-axis on the body X, Z-plane and the body X-axis; degrees
β	BETA	sideslip angle, angle between the wind X_w-axis and the projection of this axis on the body X-Z-plane; degrees
ψ	PSI	yaw angle, angle of rotation about the body Z-axis, positive when the positive X-axis is rotated toward the positive Y-axis; degrees
ϕ	PHI	roll angle, angle of rotation about the body X-axis, positive when the positive Y-axis is rotated toward the positive Z-axis; degrees
ρ		air density; K_g/m^3, slugs/ft^3
a		speed of sound; m/sec, ft/sec
V		speed of vehicle relative to surrounding atmosphere; m/sec, ft/sec
q	Q(PSI) Q(PSF)	dynamic pressure; $1/2\rho V^2$, psi, psf
M	MACH	Mach number; V/a
RN/L	RN/L	Reynolds number per unit length; million/ft
p		static pressure; psi
P		total pressure; psi
C_p	CP	pressure coefficient; $(p-p_\infty)/q$

NOMENCLATURE (Continued)

Reference & C. G. Definitions

SYMBOL	SADSAC SYMBOL	DEFINITION
S		wing area; m^2, ft^2
S	SREF	reference area; m^2, ft^2
$\bar{c}$		wing mean aerodynamic chord or reference chord; m, ft, in (see ℓ_{ref} or LREF)
ℓ_{ref}	LREF	reference length; m, ft, in.; (see $\bar{c}$)
b_{ref}	BREF	wing span or reference span; m, ft, in
A_b		base area; m^2, ft^2, in^2
c. g.		center of gravity
MRP	MRP	abbreviation for moment reference point
	XMRP	abbreviation for moment reference point on X-axis
	YMRP	abbreviation for moment reference point on Y-axis
	ZMRP	abbreviation for moment reference point on Z-axis

NOMENCLATURE (Continued)

Axis System General

SYMBOL	DEFINITION
F	force; F, lbs
M	moment; M, in-lb

Subscript	Definition
N	normal force
A	axial force
L	lift force
D	drag force
Y	force or moment about the Y axis
Z	moment about the Z axis
X	moment about the X axis
s	stability axis system
w	wind axis system
ref	reference conditions
∞	free stream conditions
t	total conditions
b	base

Body & Stability Axis System

SYMBOL	SADSAC SYMBOL	DEFINITION
		Body Axis System
C_N	CN	normal force coefficient; F_N/qS
C_A	CA	axial force coefficient; F_A/qS
C_{A_b}	CAB	base axial force coefficient; $\left[-1\right] \left[(p_b - p_\infty)/q\right] (A_b/S)$
C_{A_f}	CAF	forebody axial force coefficient; $C_A - C_{A_b}$
C_n	CYN	yawing moment coefficient; $M_Z/qS\ b_{ref}$
C_ℓ	CBL	rolling moment coefficient; $M_X/qS\ b_{ref}$
		Common to Both Axis Systems
C_m	CLM	pitching moment coefficient; $M_Y/qS\ \ell_{ref}$
C_y	CY	side force coefficient; F_Y/qS
		Stability Axis System
C_L	CL	lift force coefficient; F_L/qS
C_D	CD	drag force coefficient; F_D/qS
C_{D_b}	CDB	base drag coefficient
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_n	CLN	yawing moment coefficient; $M_{Z,s}/qS\ b_{ref}$
C_ℓ	CSL	rolling moment coefficient; $M_{X,s}/qS\ b_{ref}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D_f	L/DF	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (Continued)

Surface Definitions

SYMBOL	SADSAC SYMBOL	DEFINITION
i_t	HORIZT	horizontal tail incidence; positive when trailing edge down; degrees
δ		symmetrical surface deflection angle; degrees; positive deflections are:
	AILRON	aileron - total aileron deflection; (left aileron - right aileron)/2
	CANARD	canard - trailing edge down
	ELEVON	elevon - trailing edge down
	ELEVTR	elevator - trailing edge down
	FLAP	flap - trailing edge down
	RUDDER	rudder - trailing edge to the left
	SPOILR	spoiler - trailing edge down
	TAB	tab - trailing edge down with respect to control surface
δ		antisymmetrical surface deflection angle, degrees; positive trailing edge down:
	AIL-L	left aileron - trailing edge down
	AIL-R	right aileron - trailing edge down
	ELVN-L	left elevon - trailing edge down
	ELVN-R	right elevon - trailing edge down
	SPLR-L	left spoiler - trailing edge down
	SPLR-R	right spoiler - trailing edge down

SURFACE SUBSCRIPTS	DEFINITION
a	aileron
b	base
c	canard
e	elevator or elevon
f	flap
r	rudder or ruddervator
s	spoiler
t	tail

TABULATED DATA LISTING

A tabulated data listing, consisting of all aero data sets, both original and those created in arriving at the plotted material to be presented subsequently, is available as an addendum to this report. The tabular listing is made up in two sections:

(a) a brief summary list of all data sets containing the identifier, the descriptor, and the resident dependent variables.

(b) a full list of all data sets containing all resident or selected aerodynamic coefficients of the data sets as well as the above mentioned information.

The listing is currently sent on limited distribution to the following organizations:

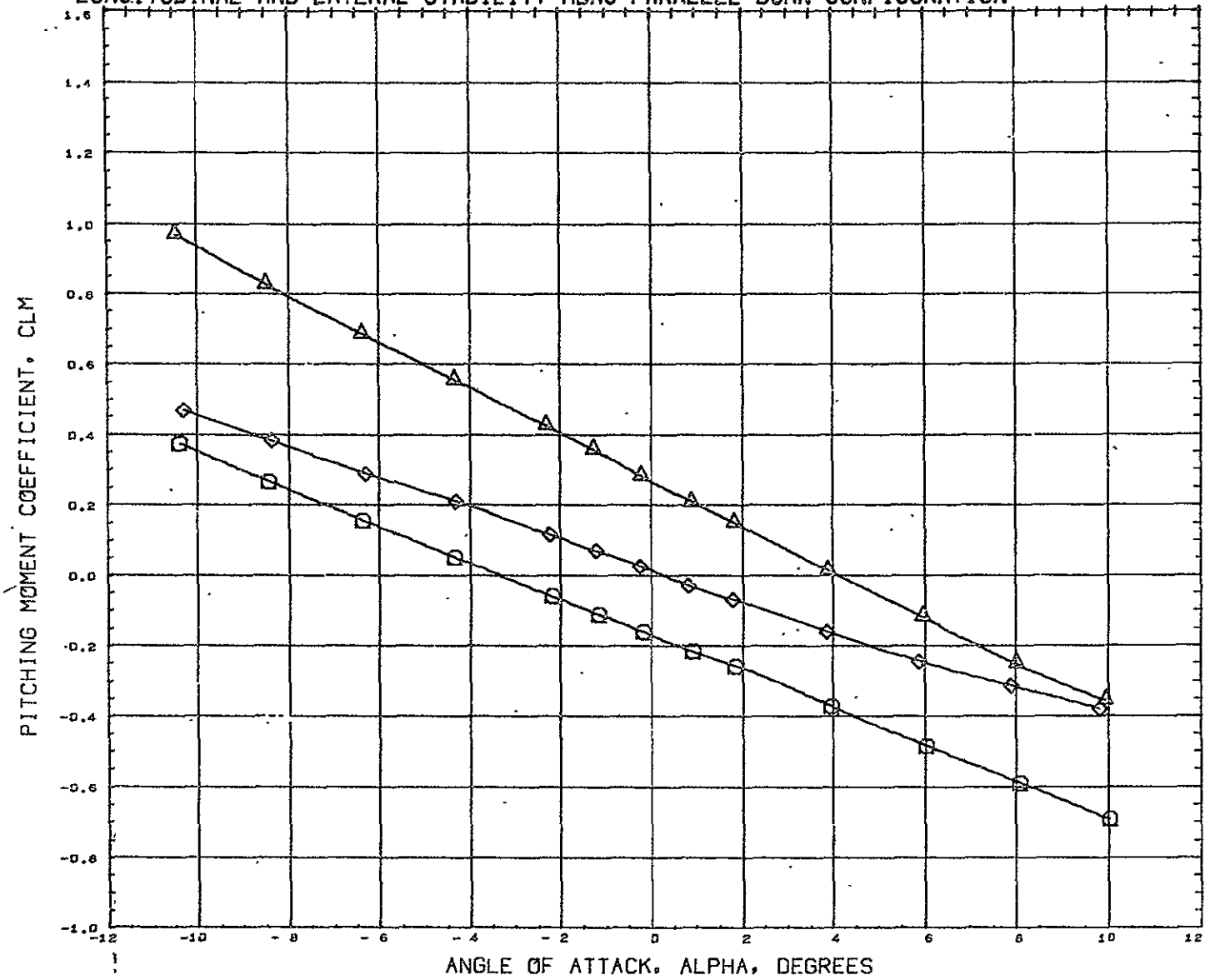
NASA AMES	Mr. V. Stevens
NASA MSFC	Mr. J. Weaver

If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

Albert D. Martin
Department 2780
Chrysler Corporation Space Division
New Orleans, La. 70129

(504) 255-2304

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



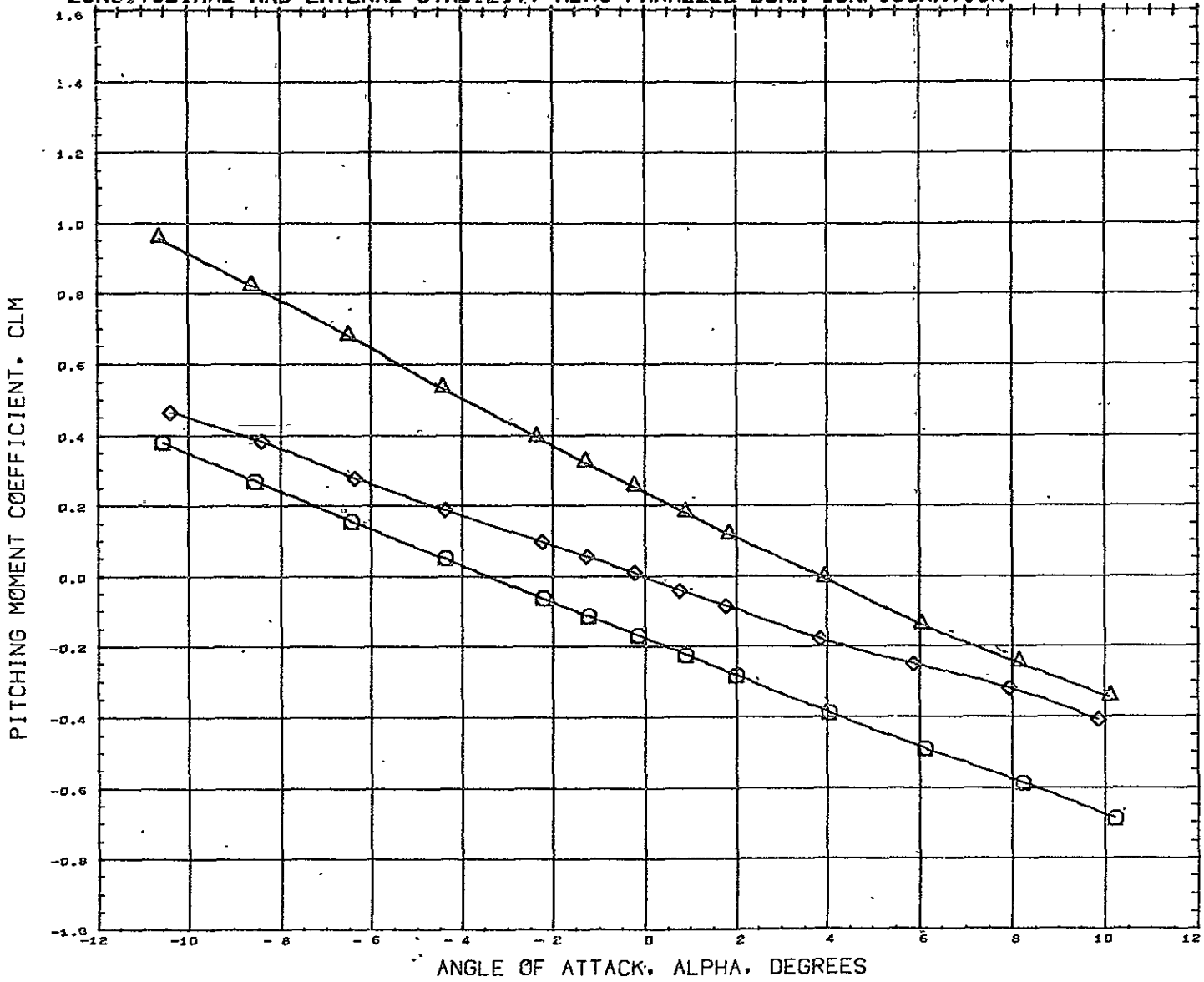
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.598

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

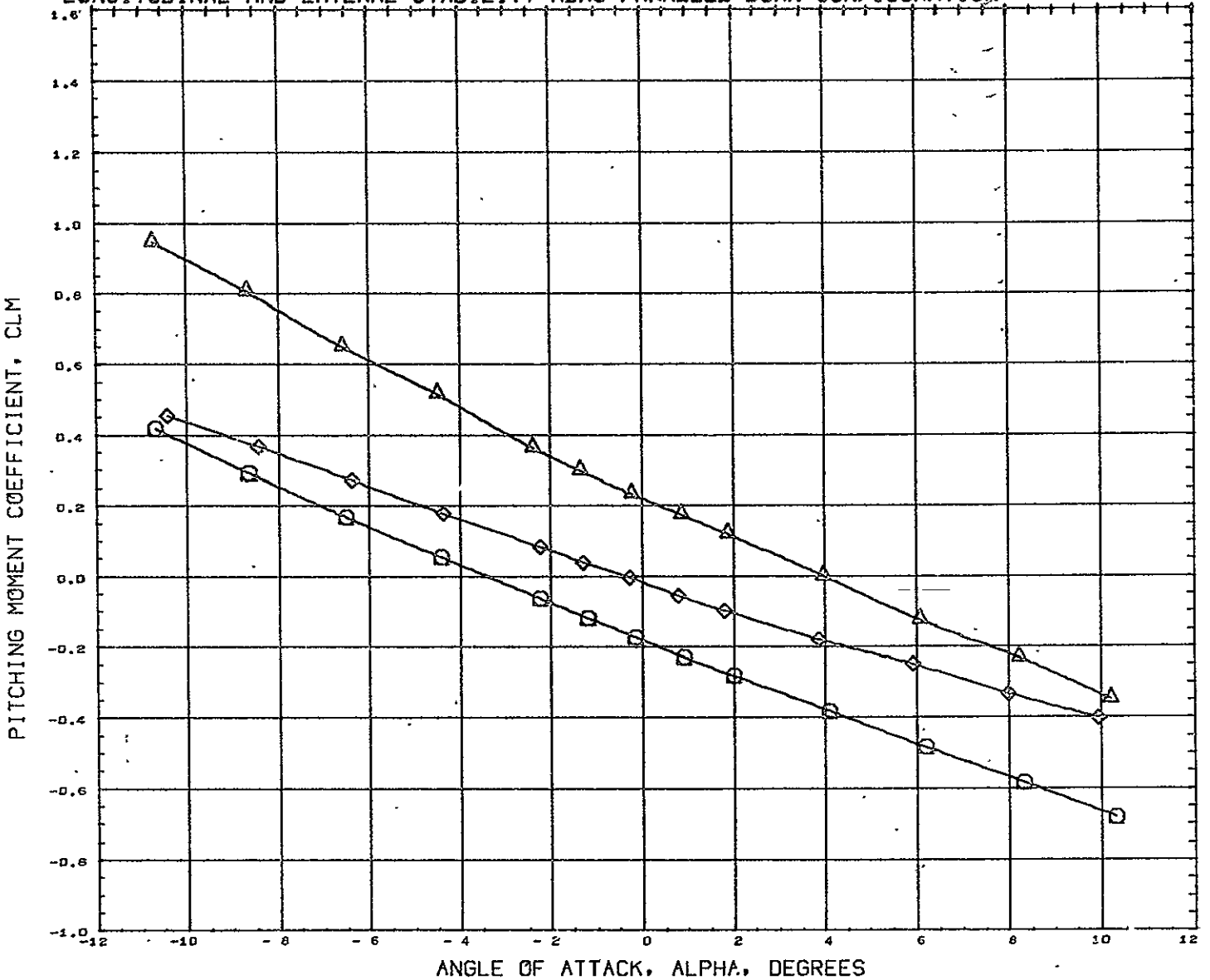


DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.797

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
EF	6.0278	IN
RP	0.0000	IN.
RF	0.0000	IN.
RF	0.5300	IN.
ALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



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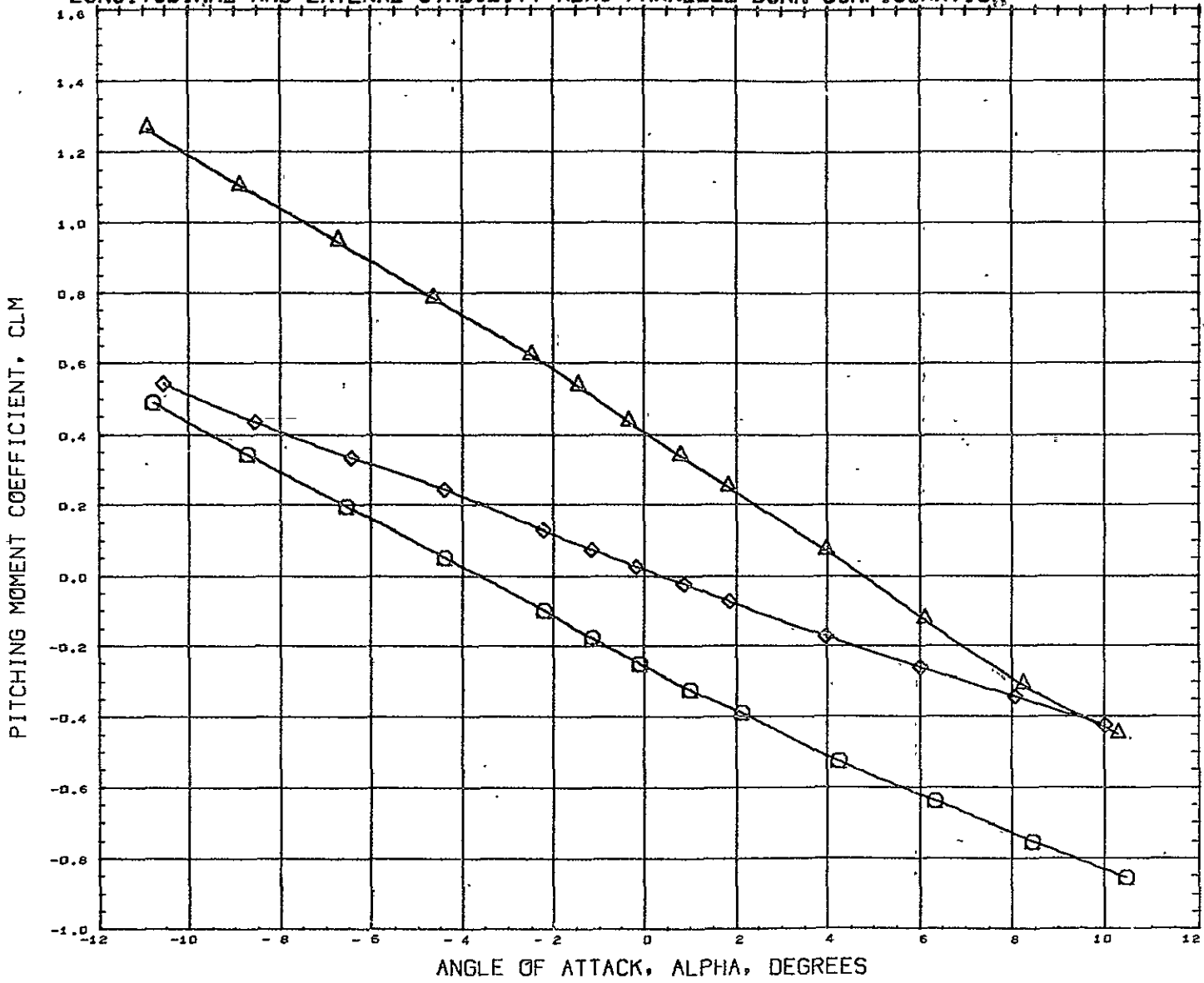
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.903

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



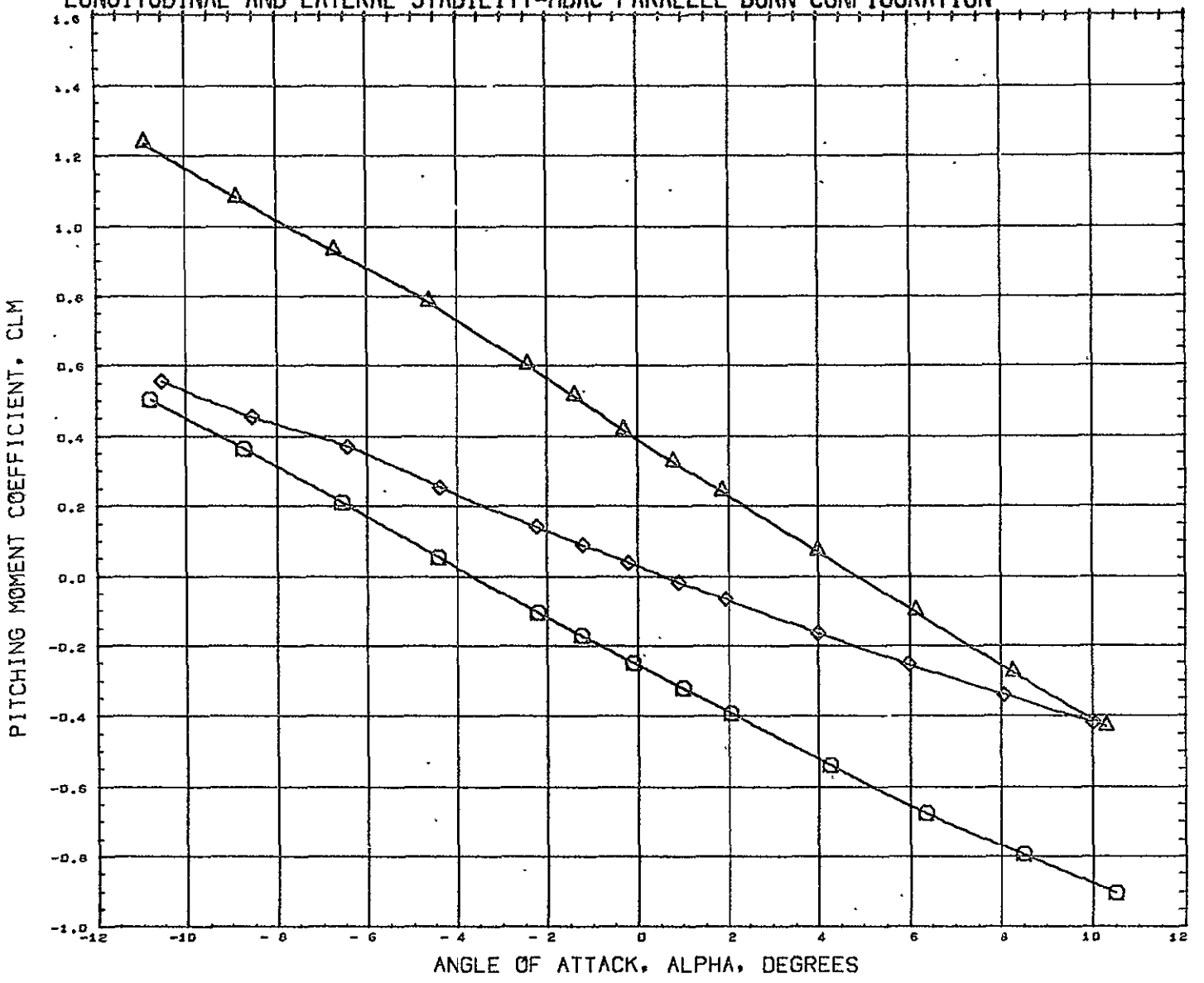
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



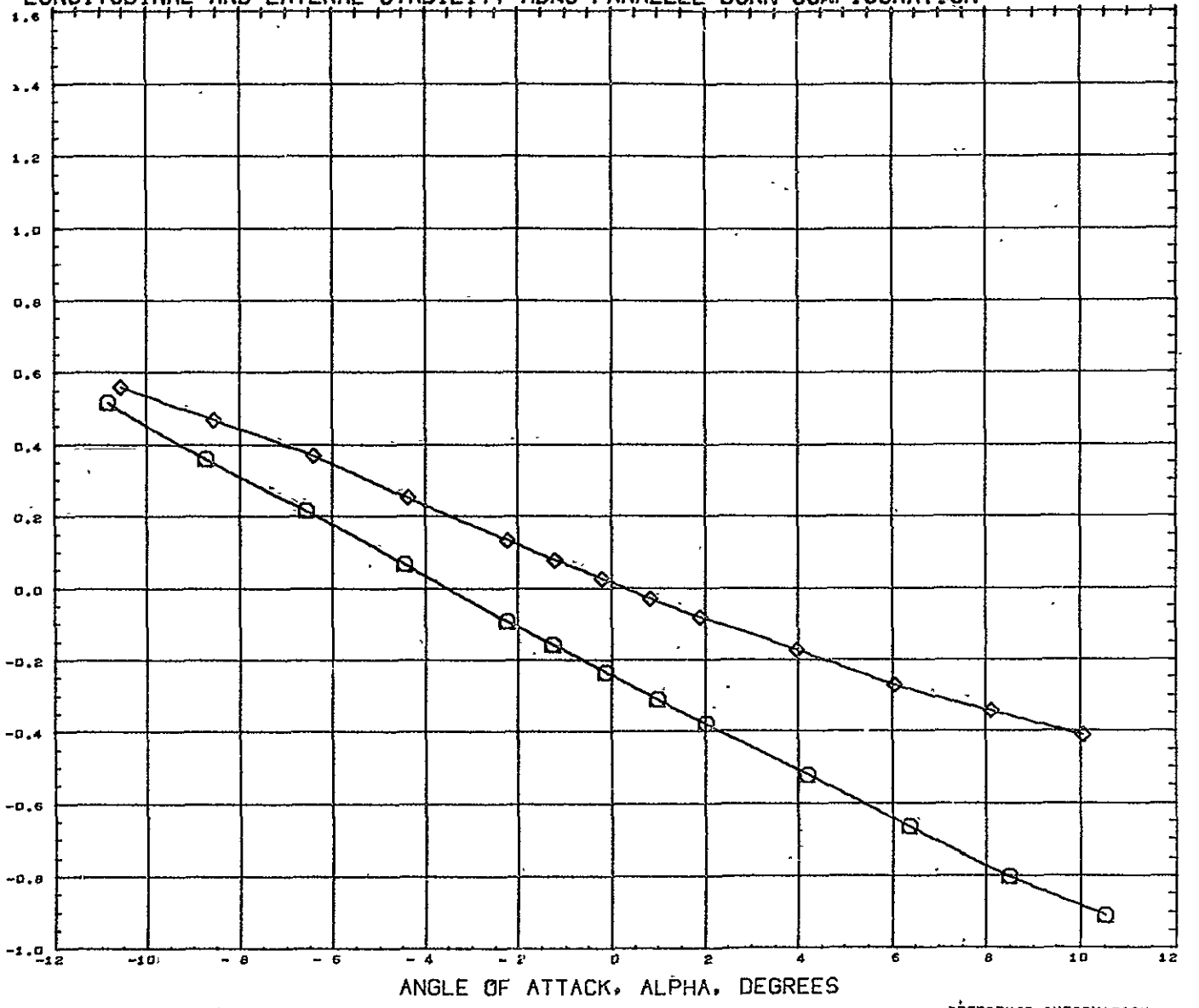
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.097

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



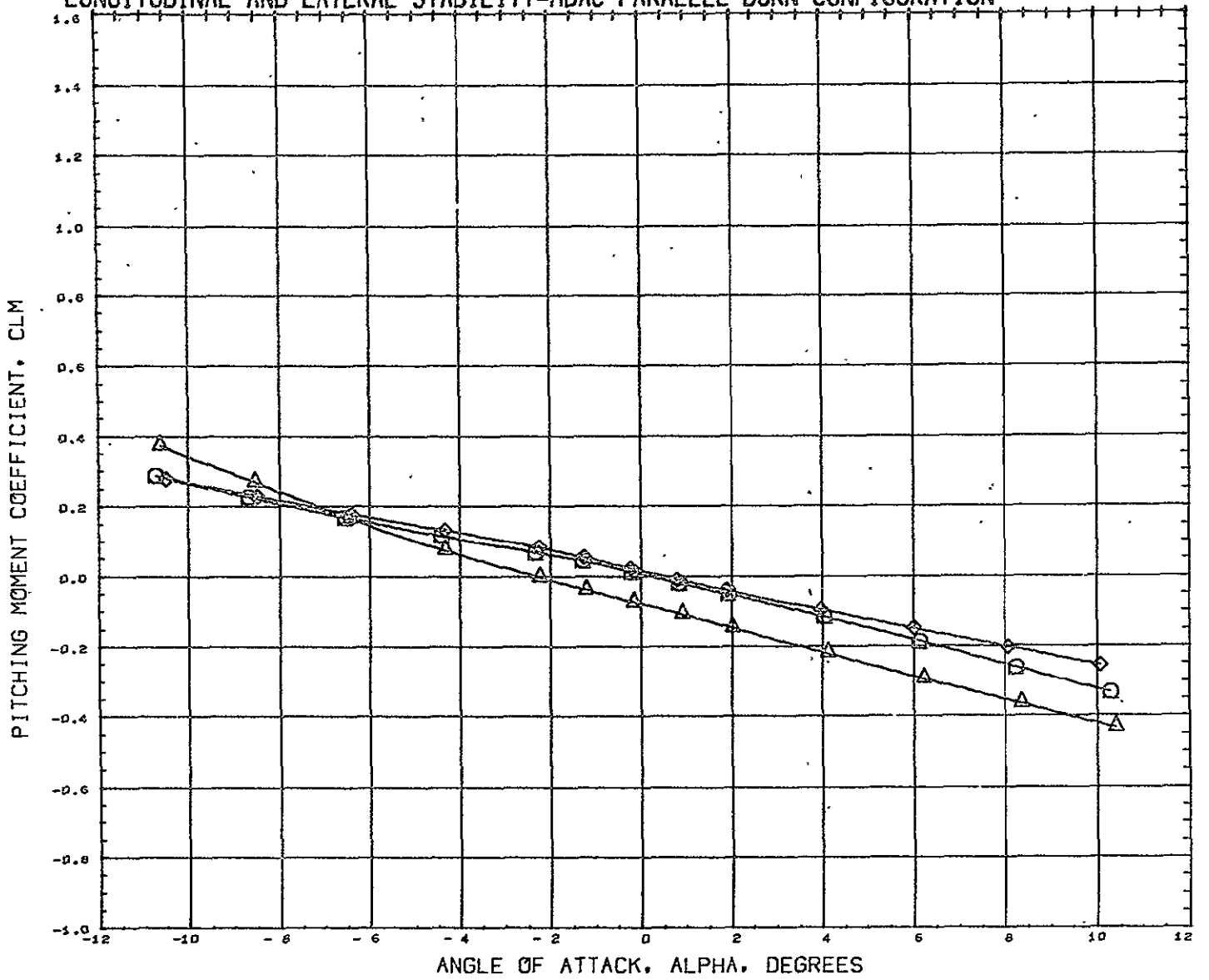
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS	
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.202

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

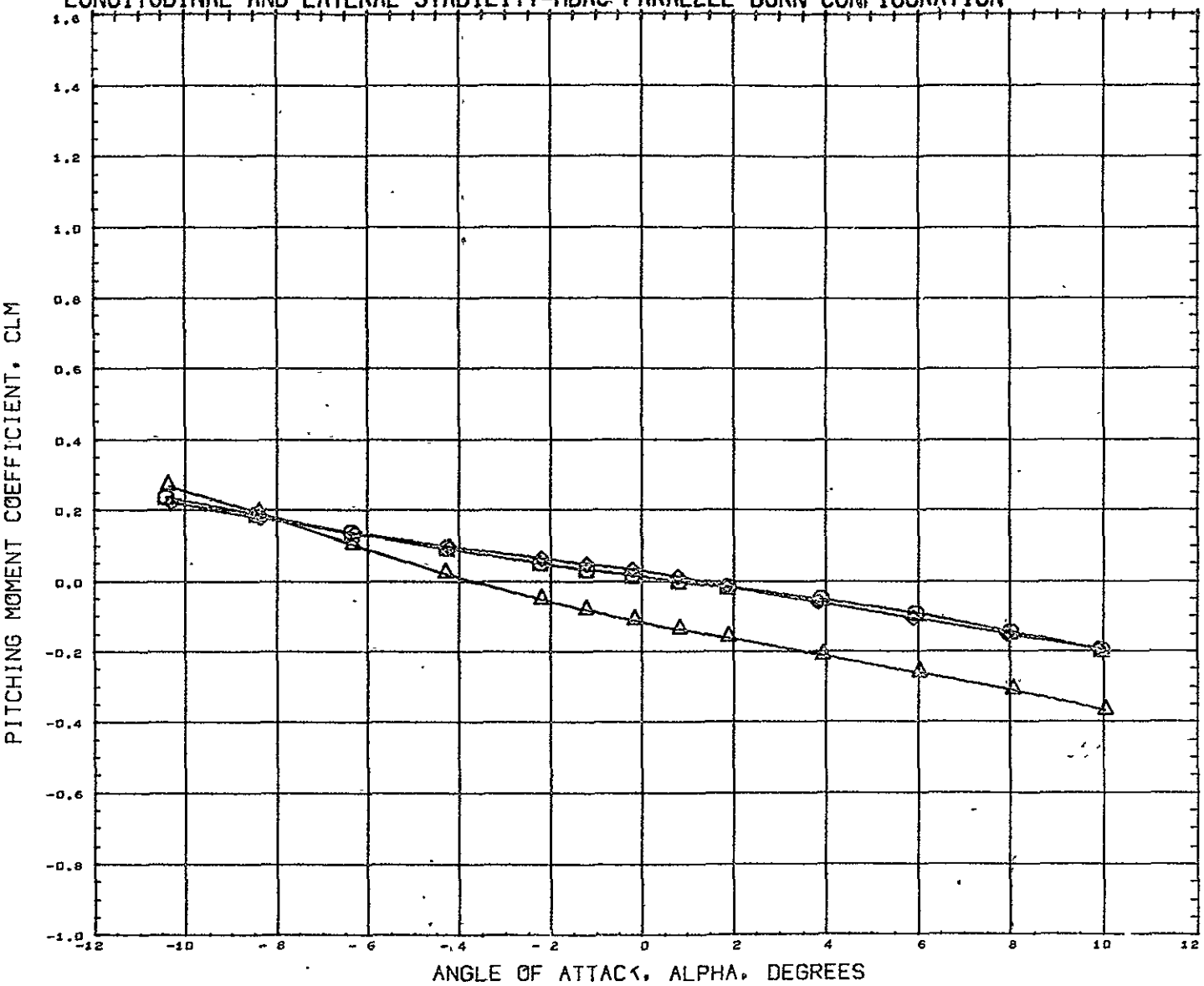


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 2.990

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



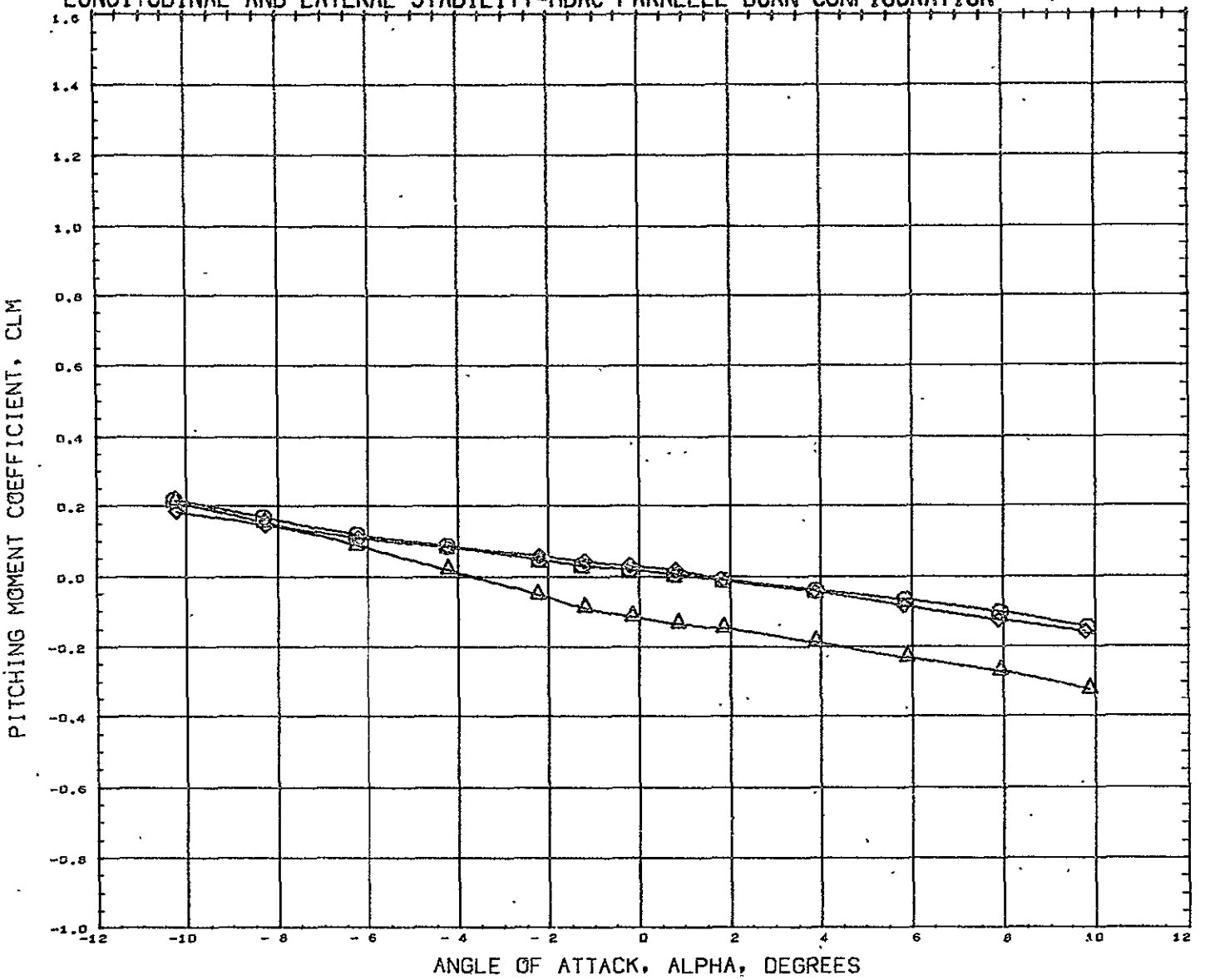
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



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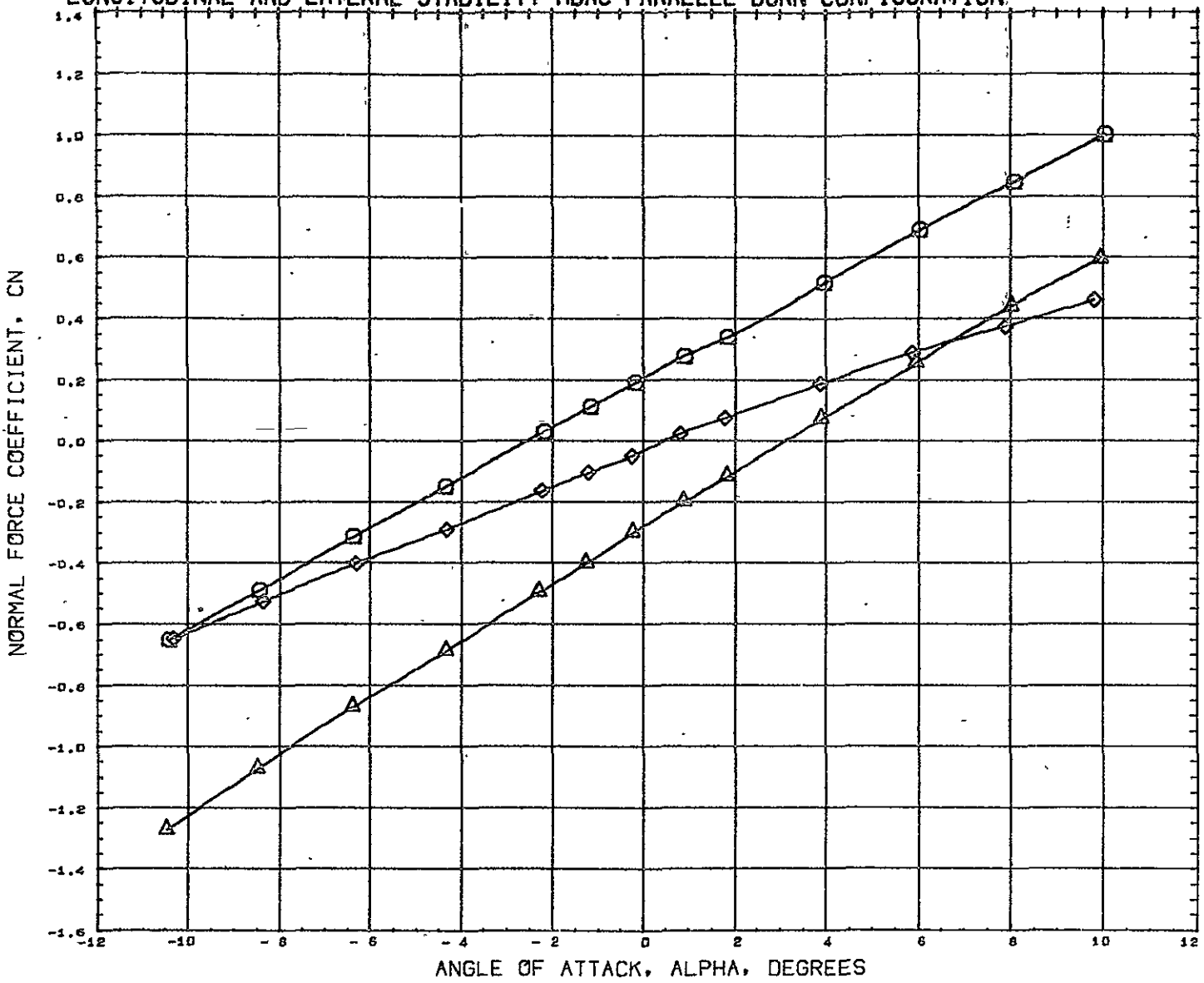
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 4.959

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.598

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
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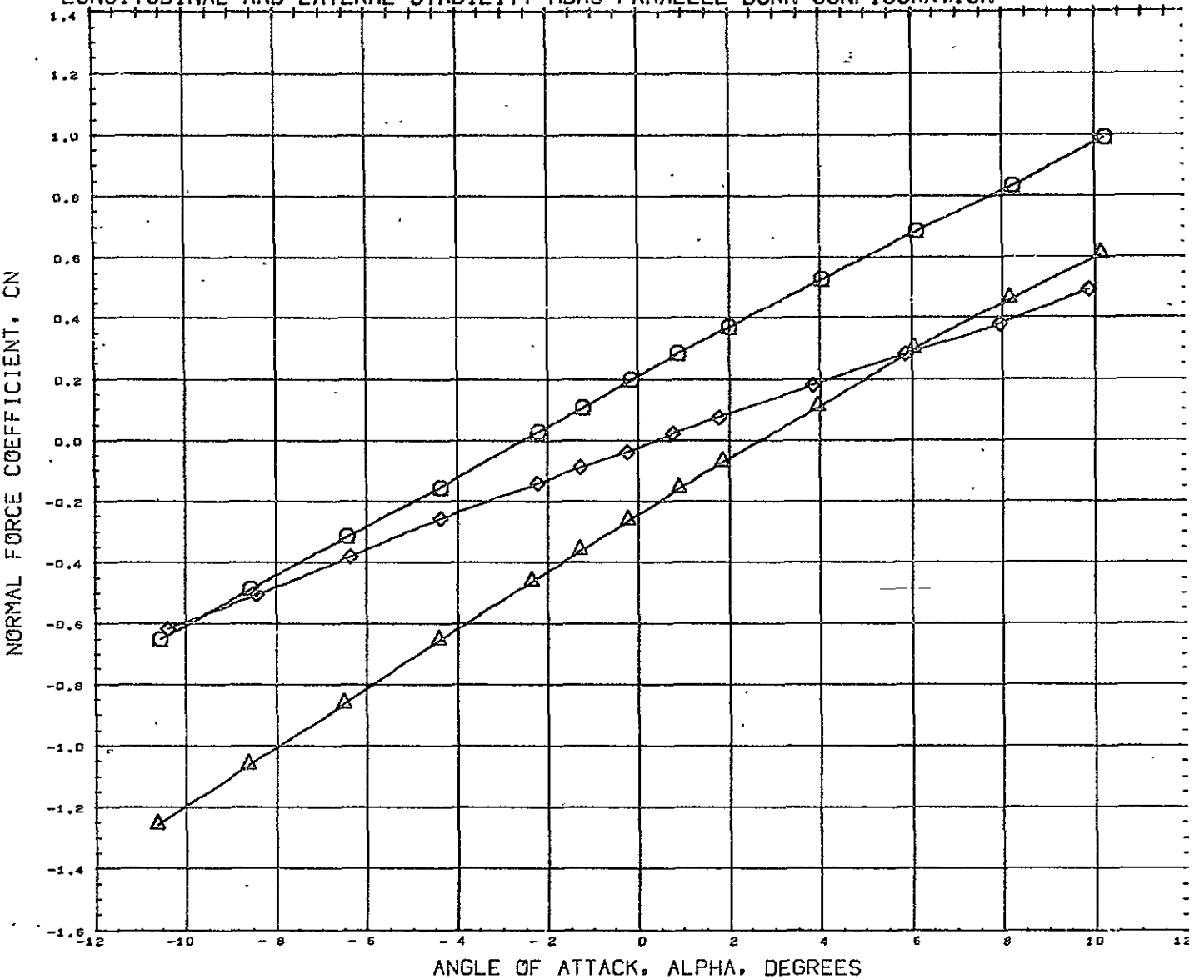
ZMRP	0.5300	IN.
SCALE	0.0020	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.797

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
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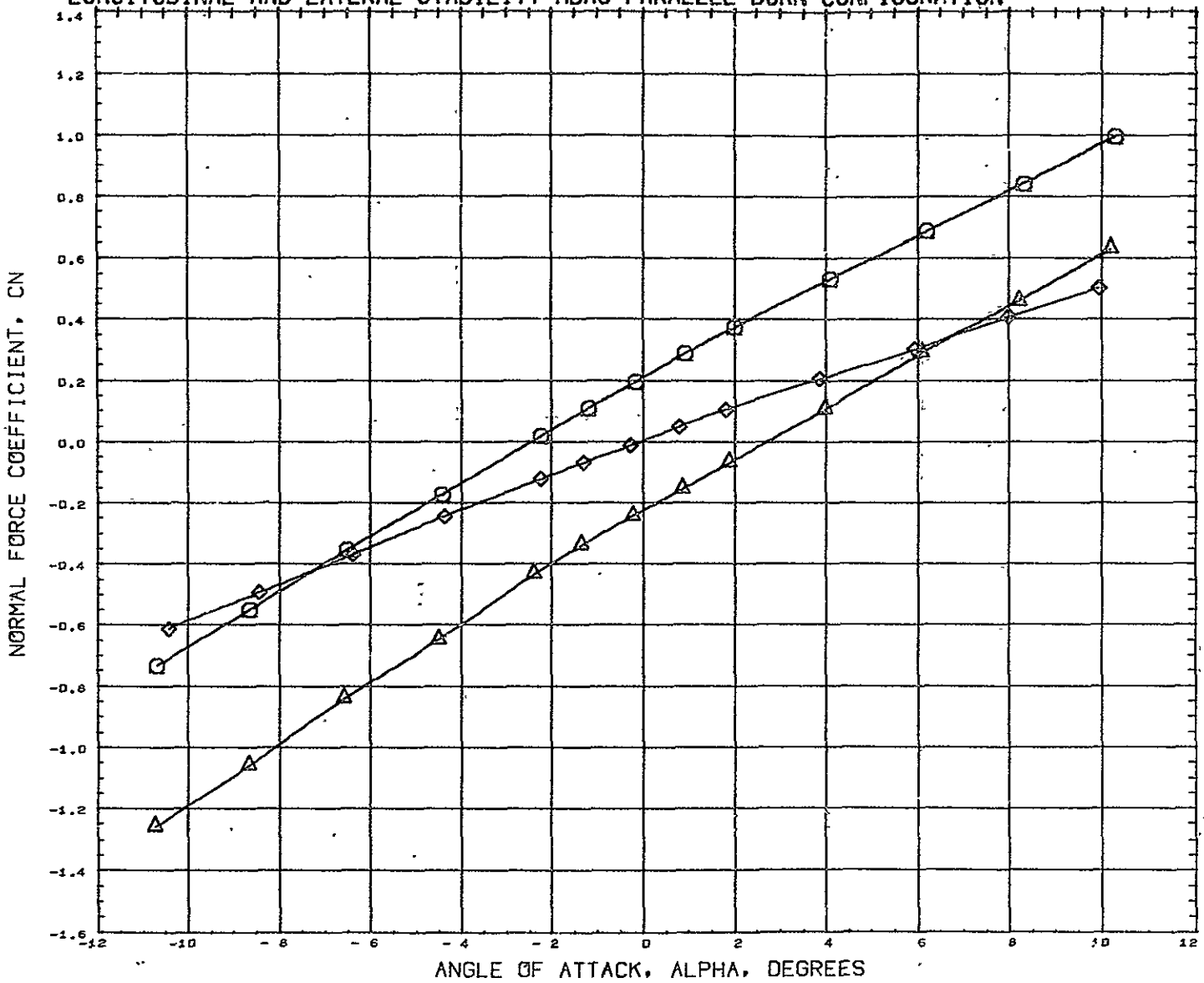
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
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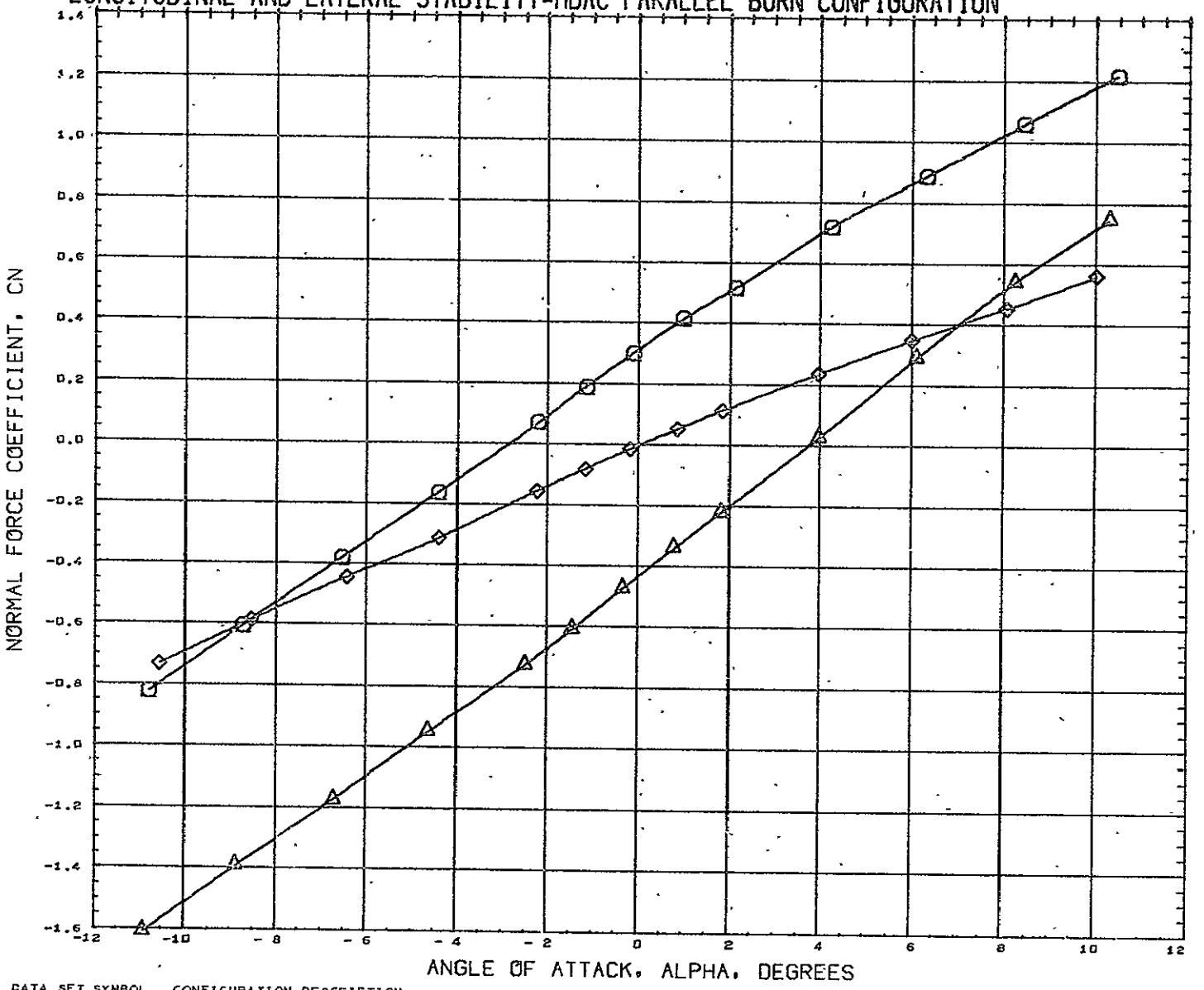
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.903

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET SYMBOL CONFIGURATION DESCRIPTION

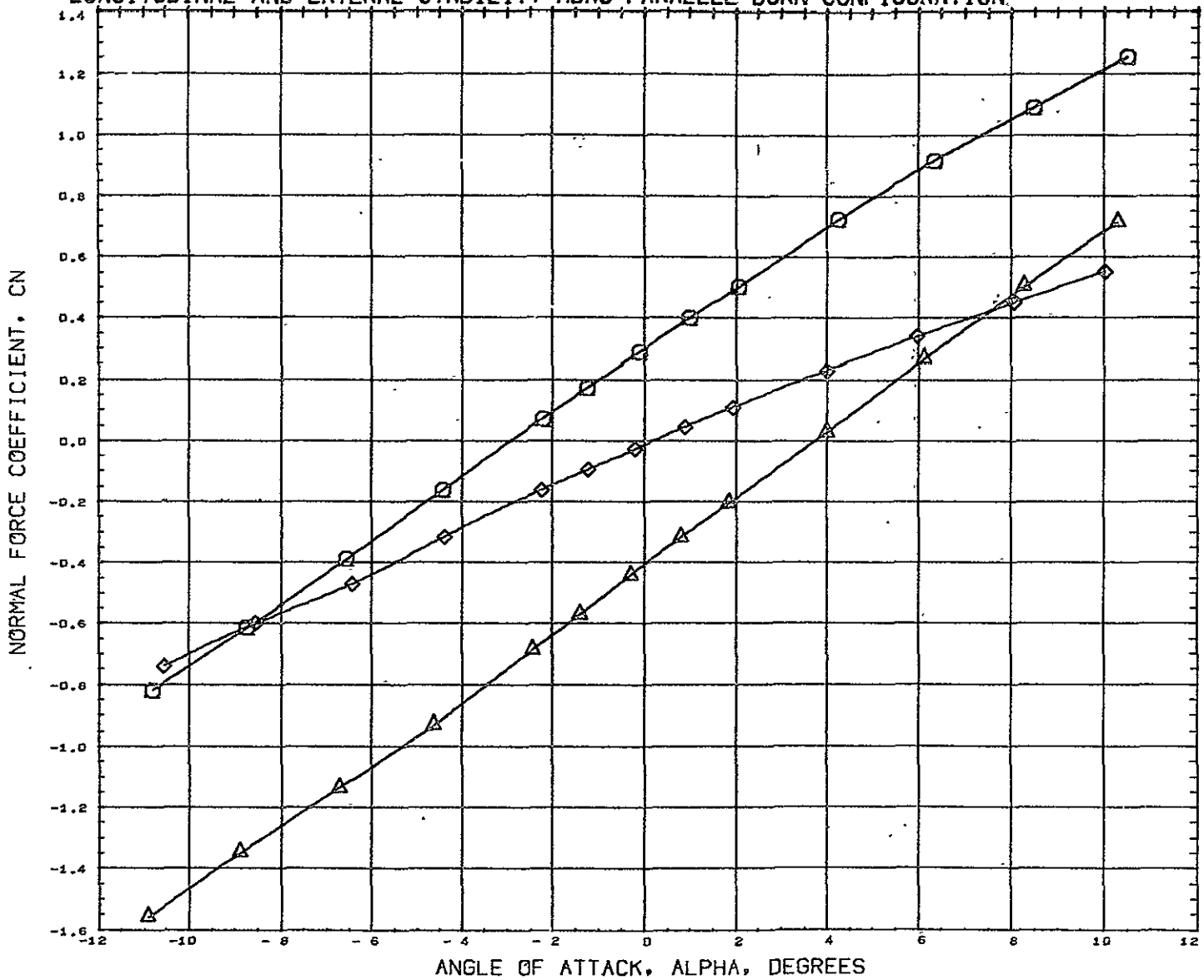
(A43011)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
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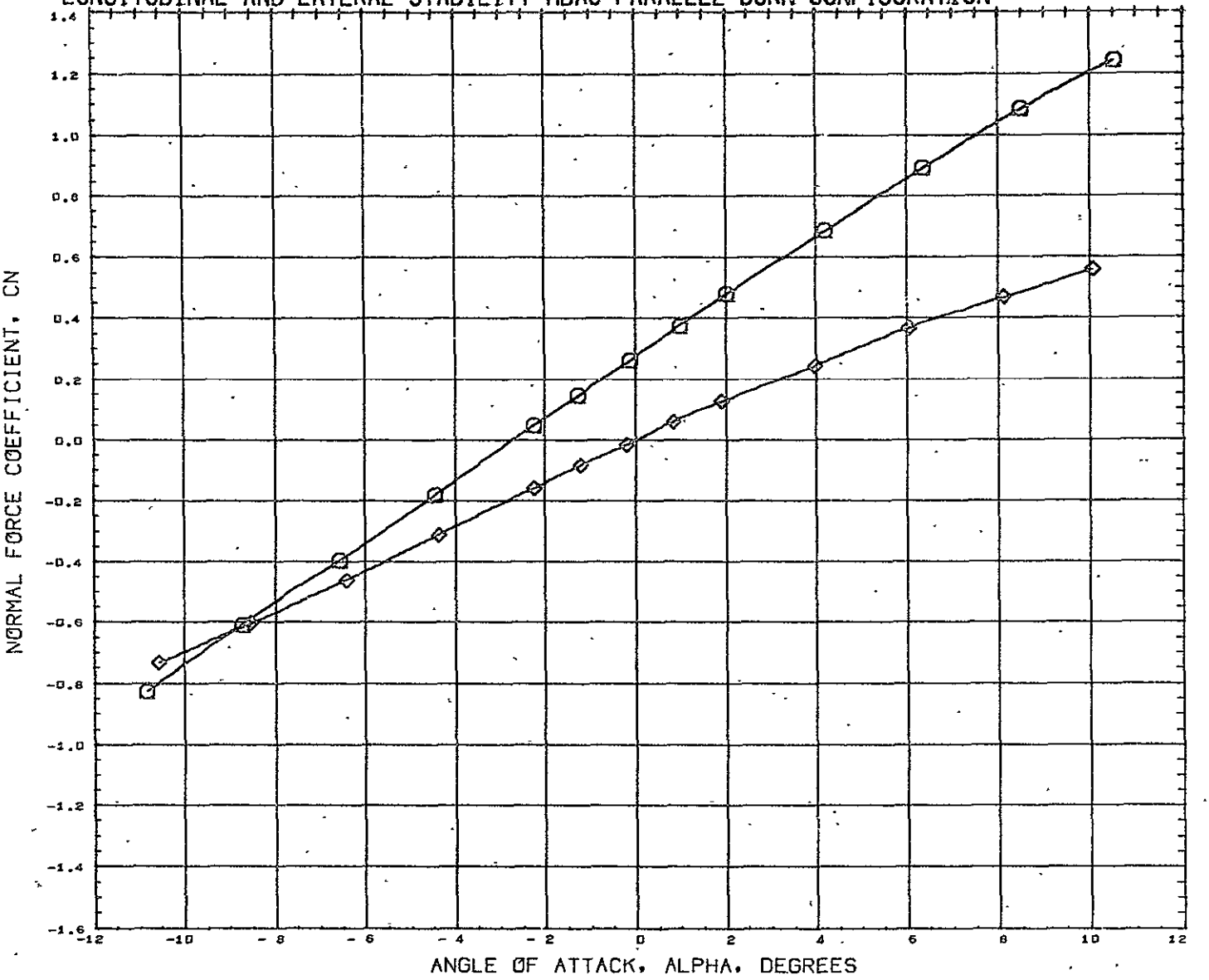
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.097

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS	
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.202

REFERENCE INFORMATION		
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LREF	6.0278	IN.
BREF	6.0278	IN
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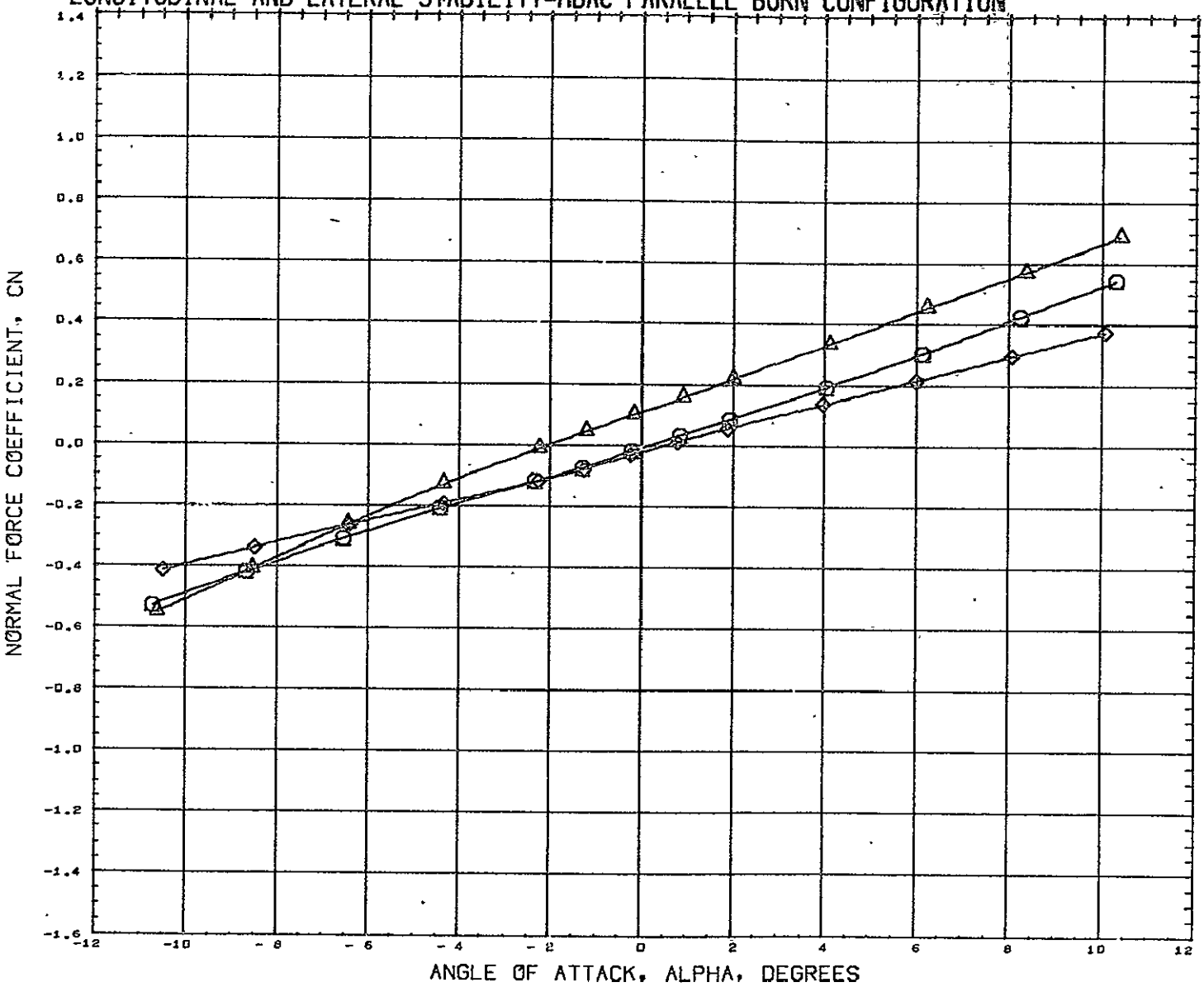
ZMRF	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



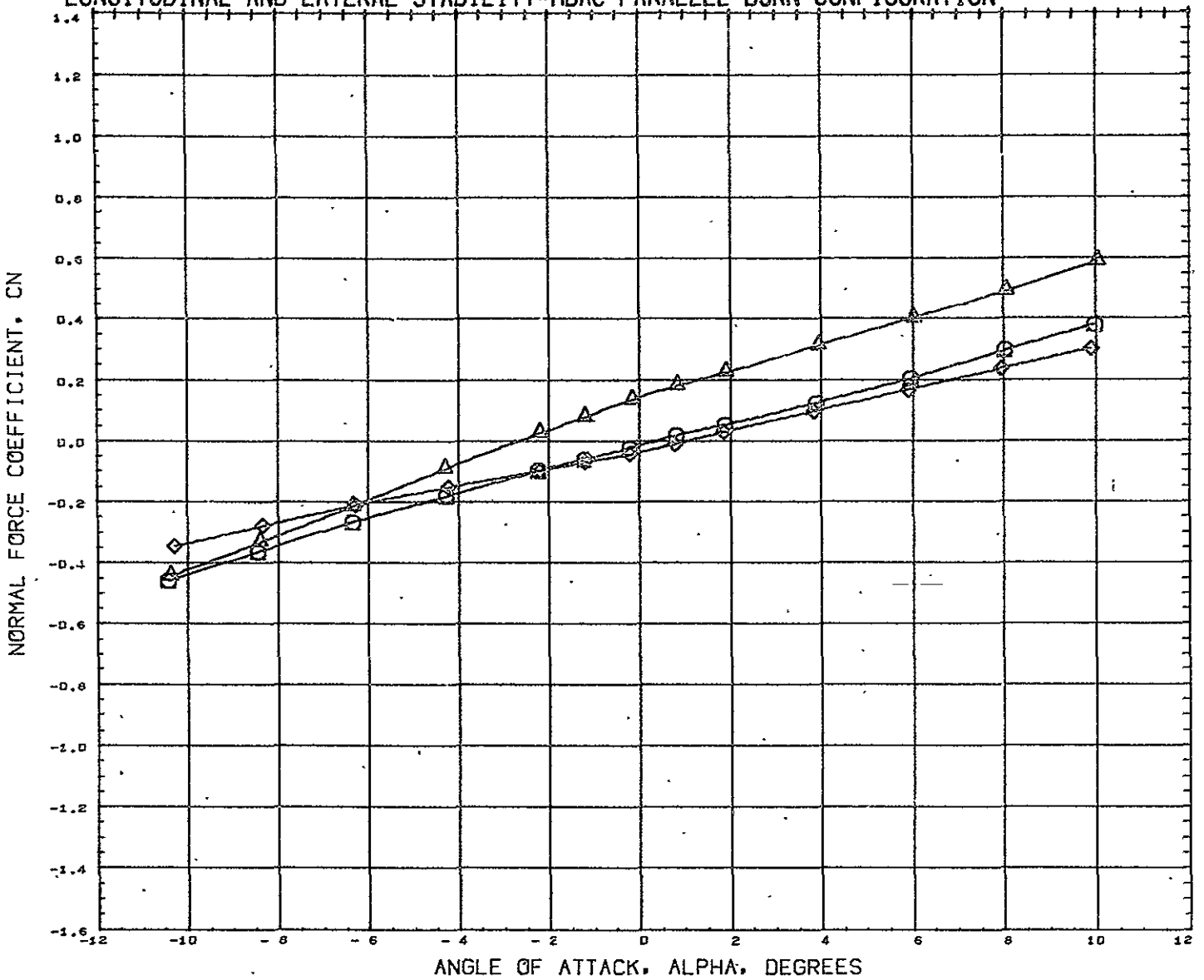
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 2.990

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



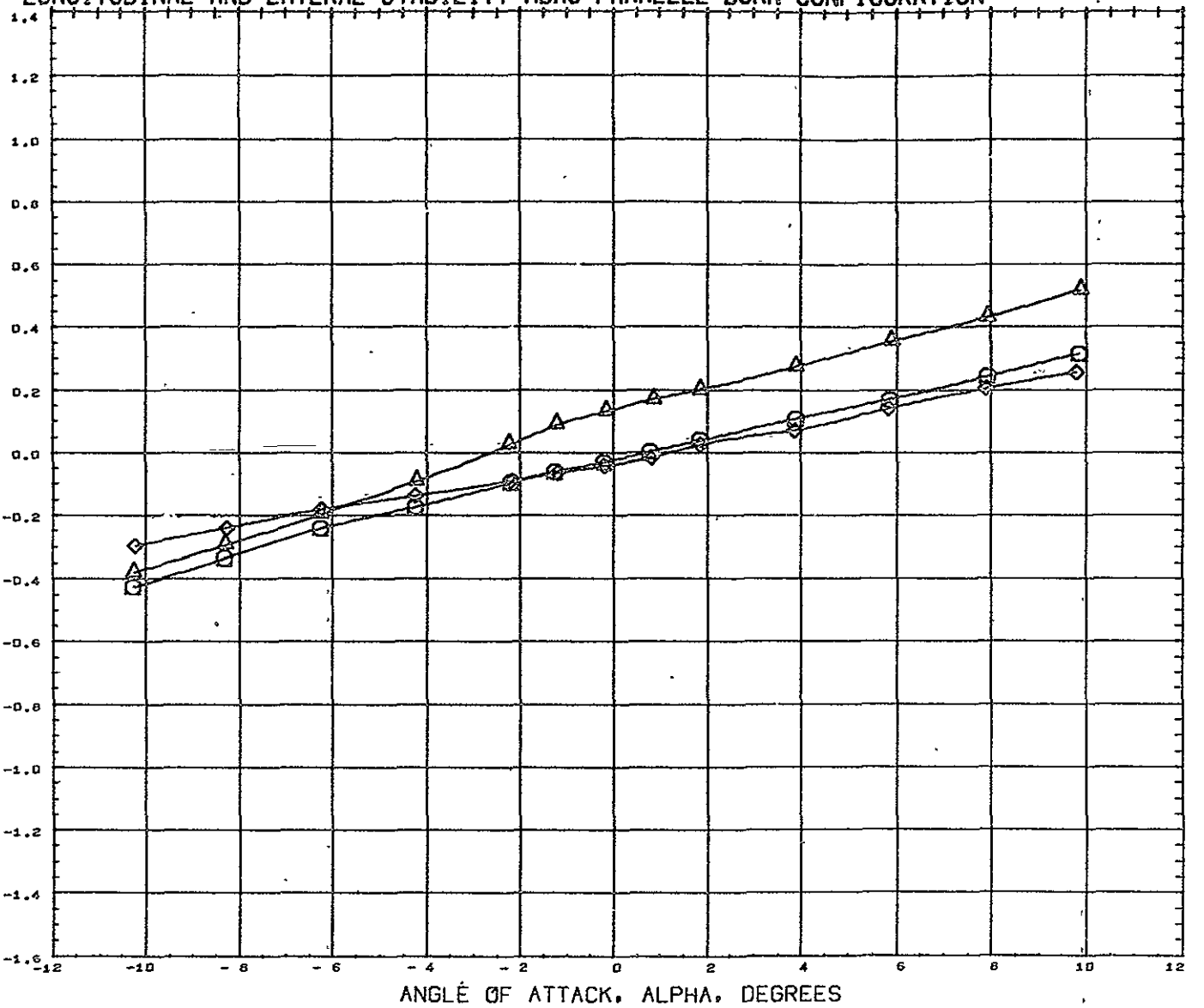
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



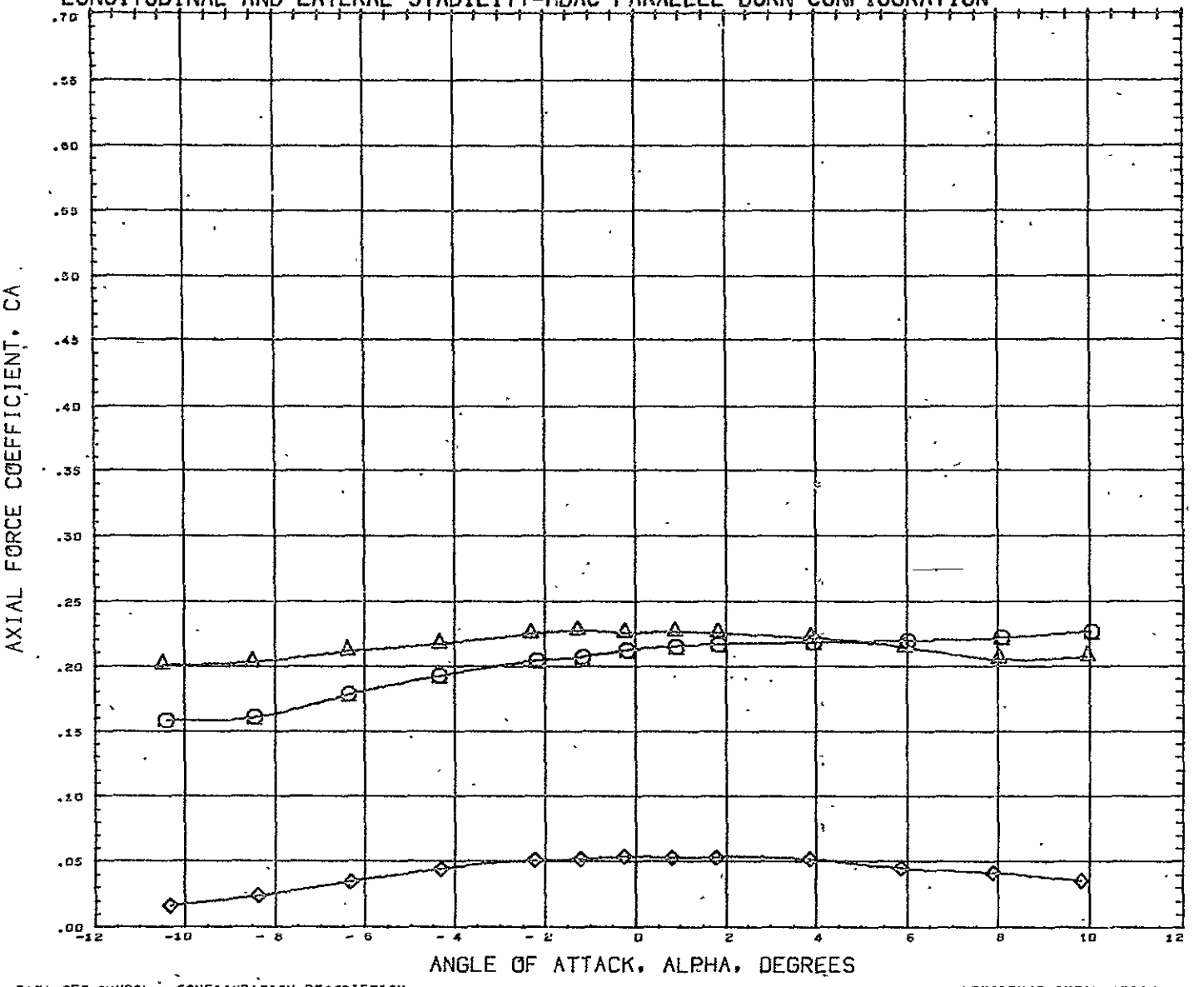
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 4.959

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



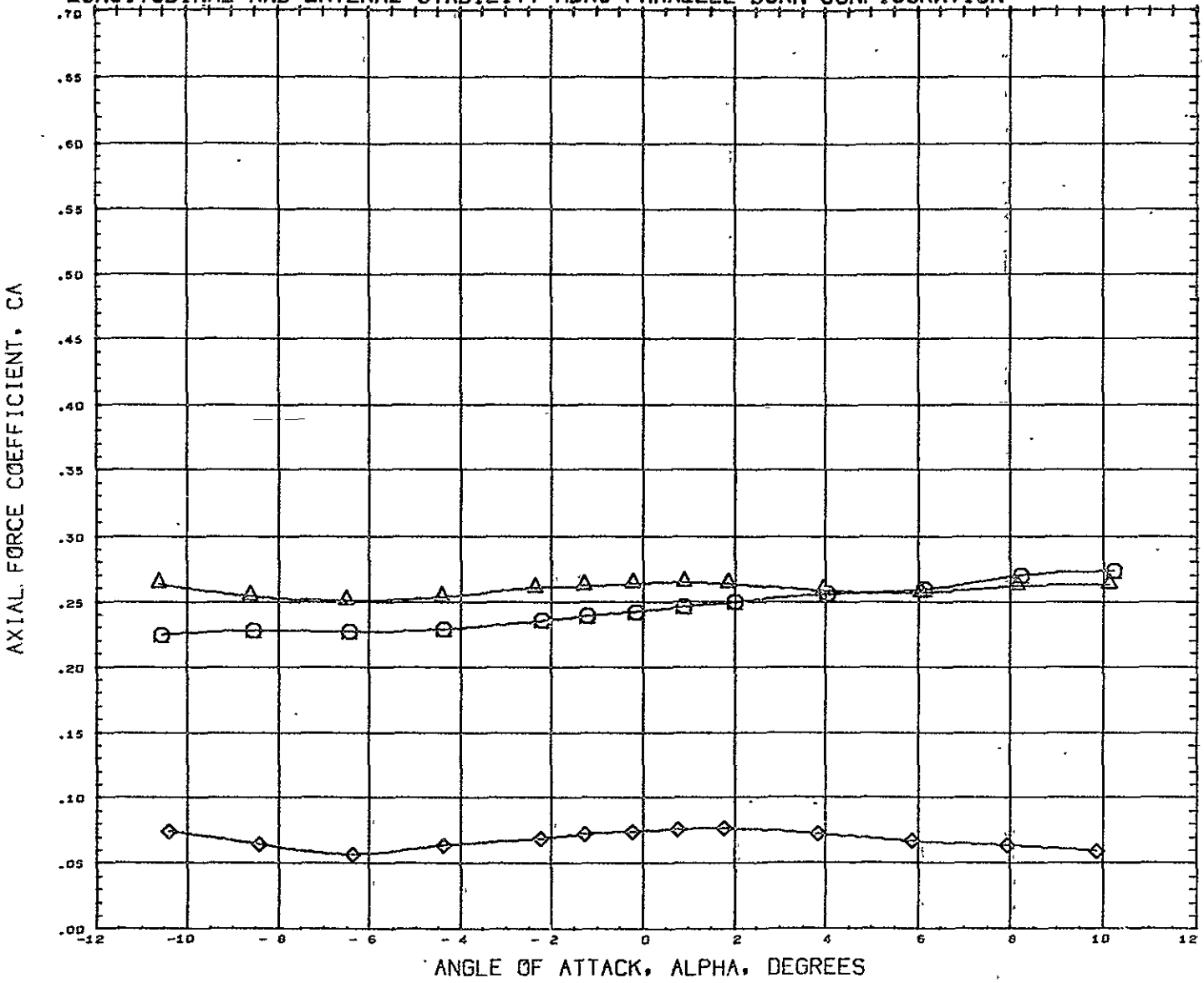
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.598

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

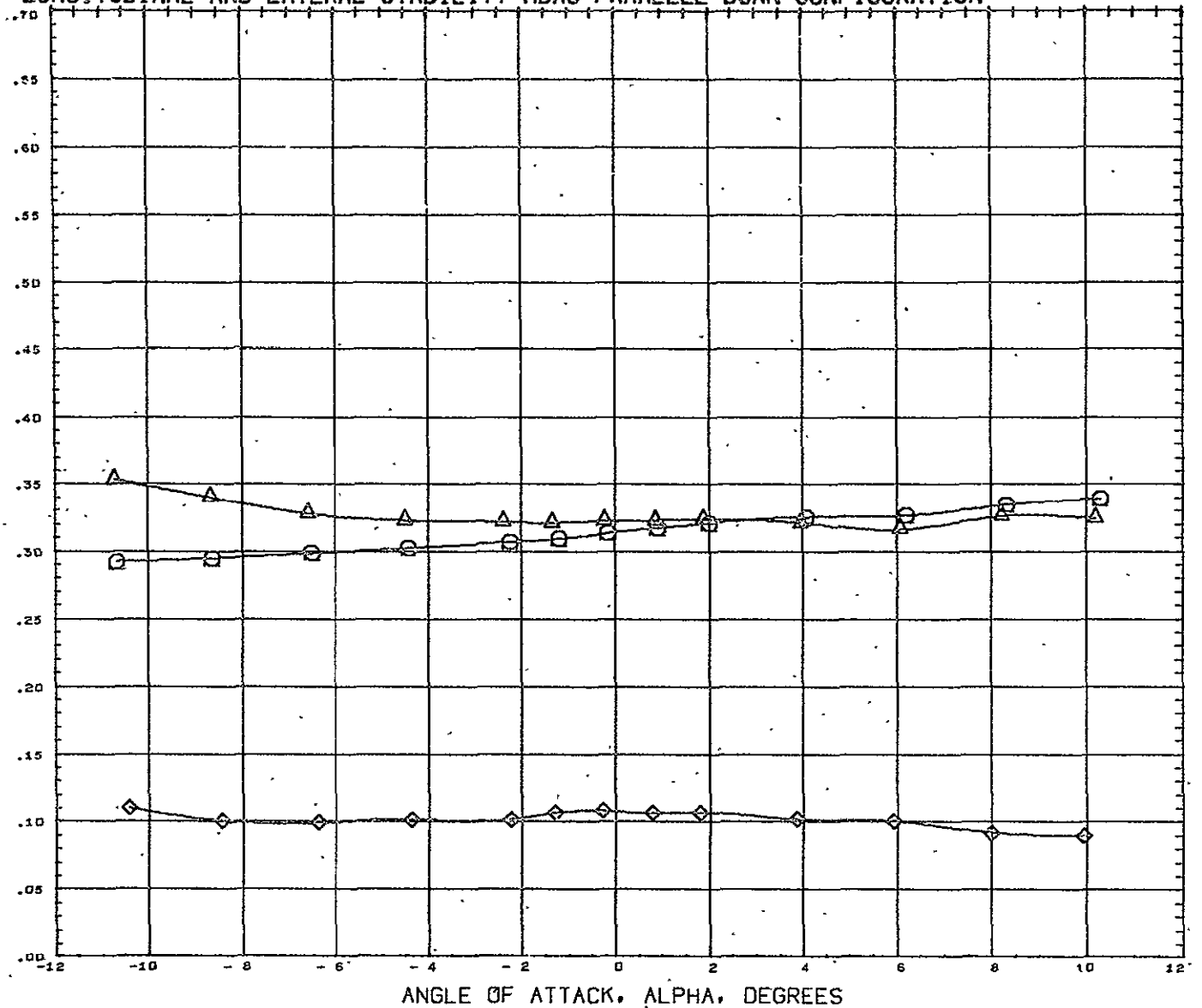


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.797

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

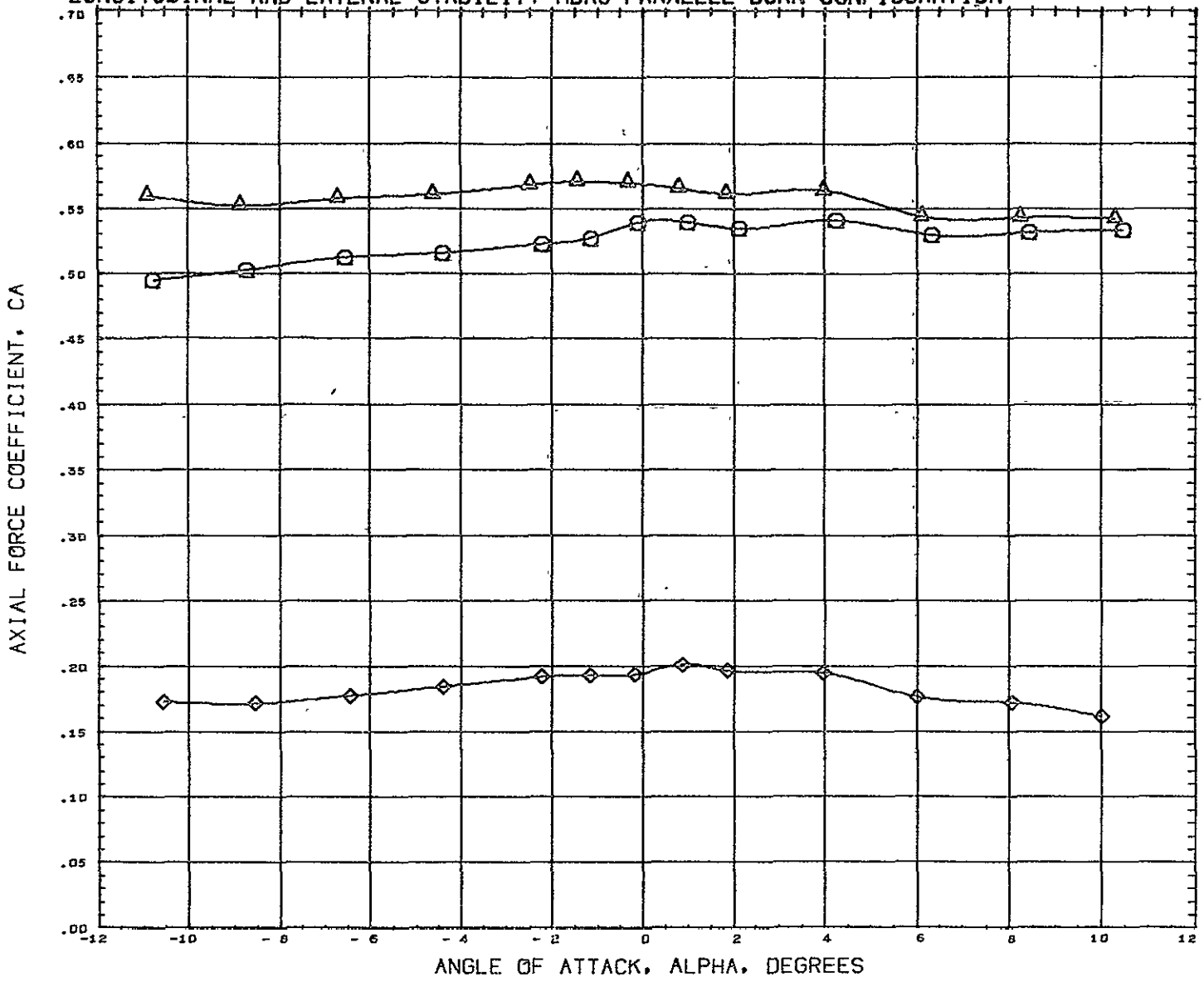
MACH 0.903

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRF	0.0000	IN.
YMRF	0.0000	IN.
ZMRF	0.5300	IN.
SCALE	0.0028	

2 9

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

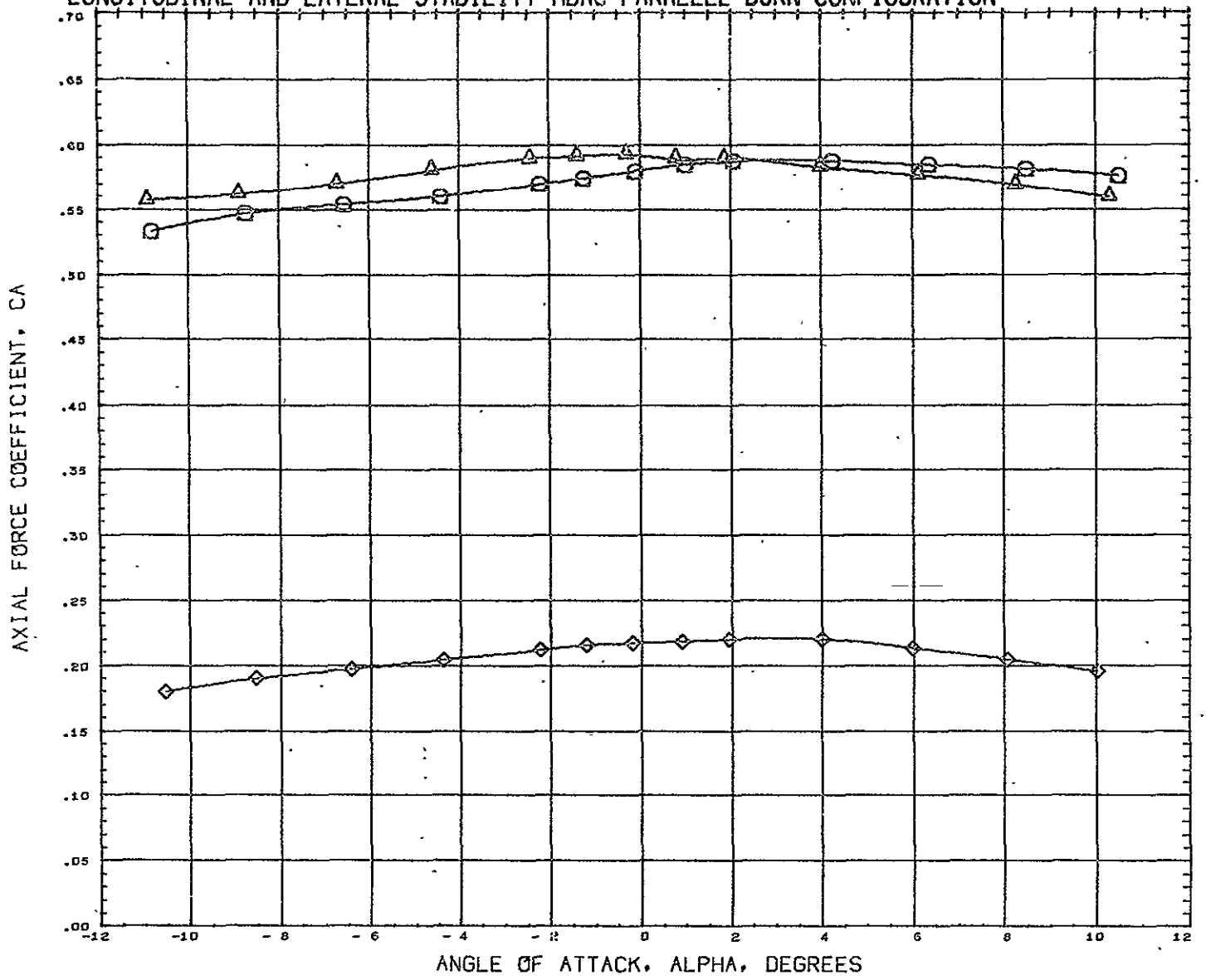


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

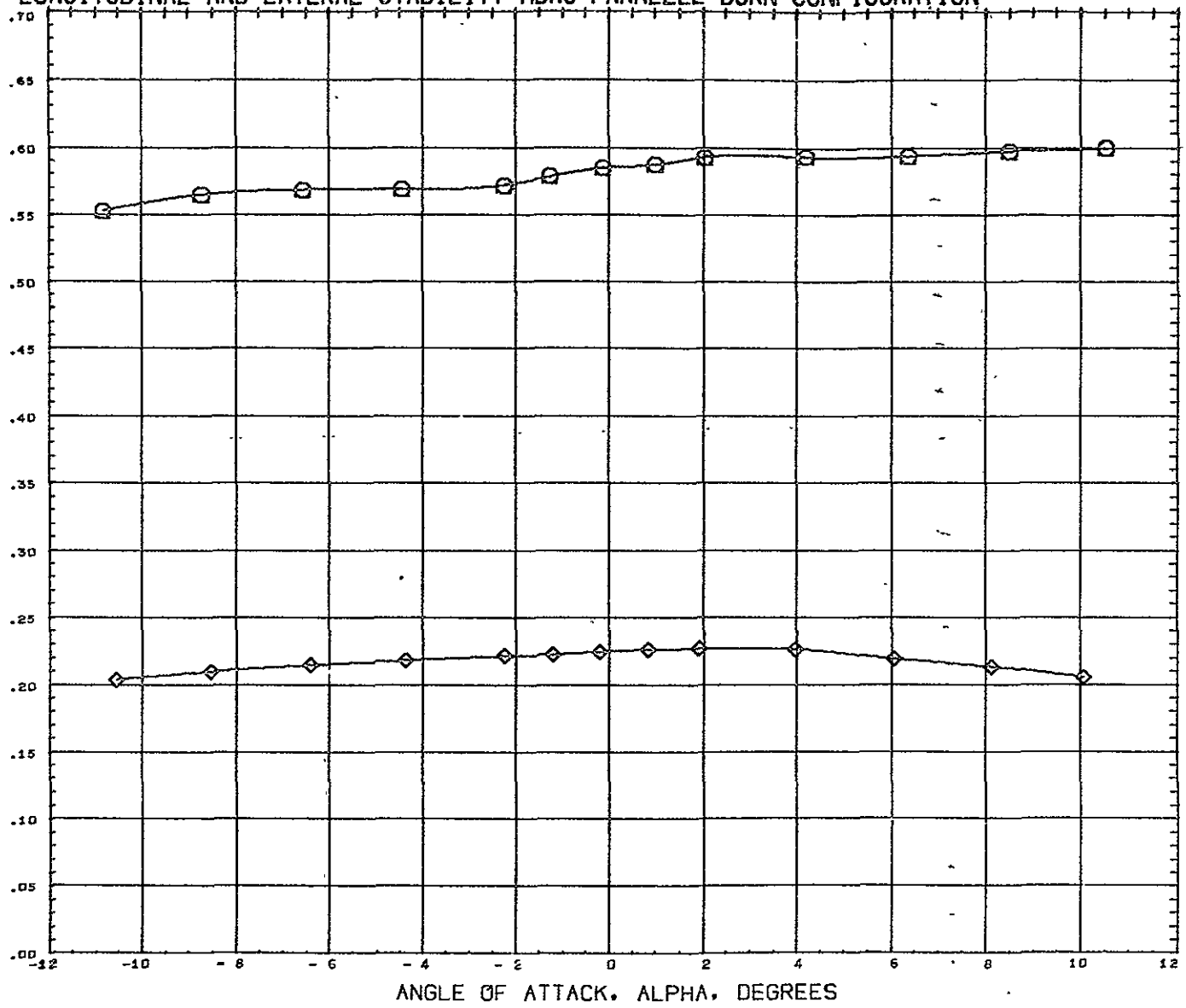


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.097

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



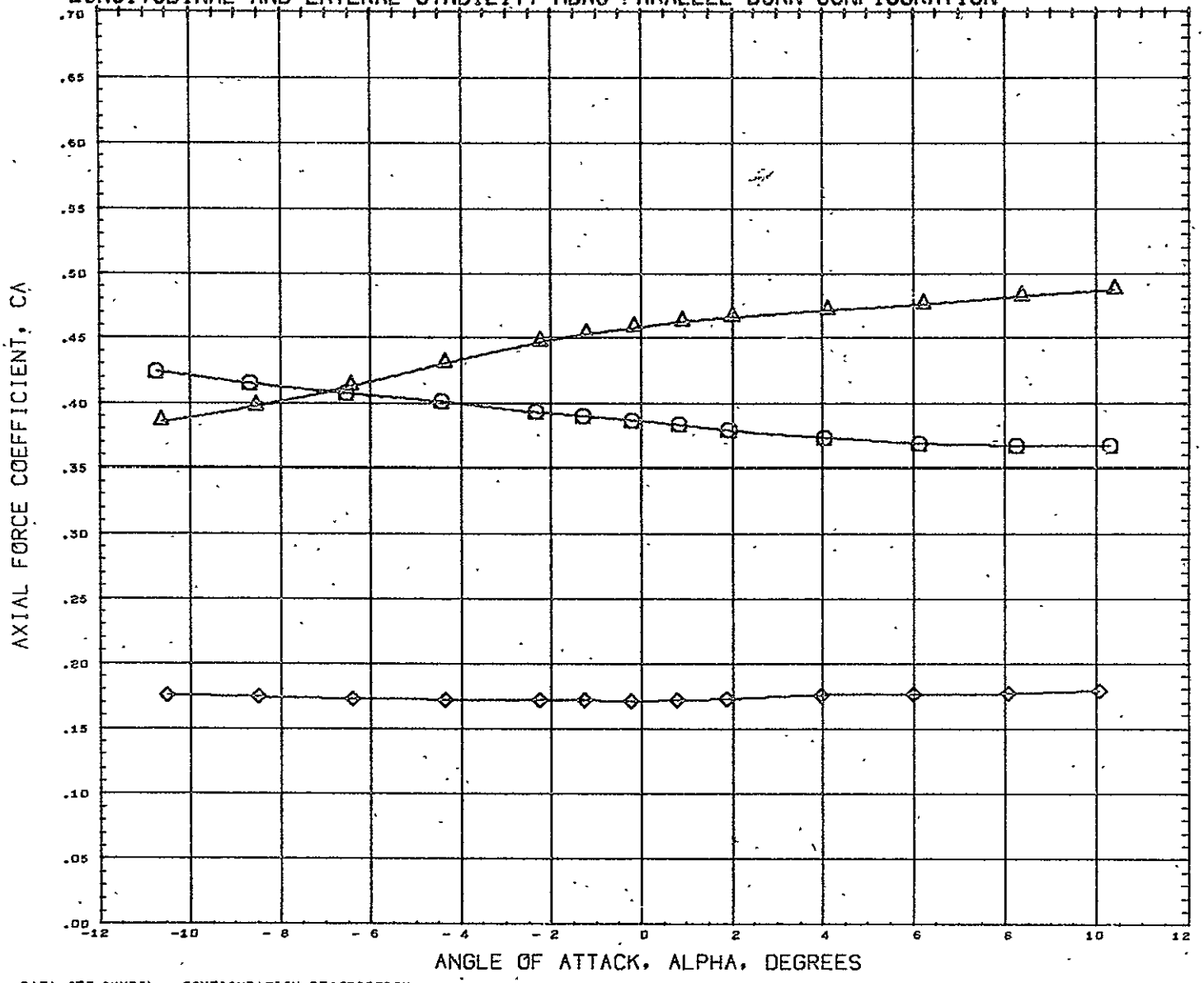
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS	
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.202

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.1028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



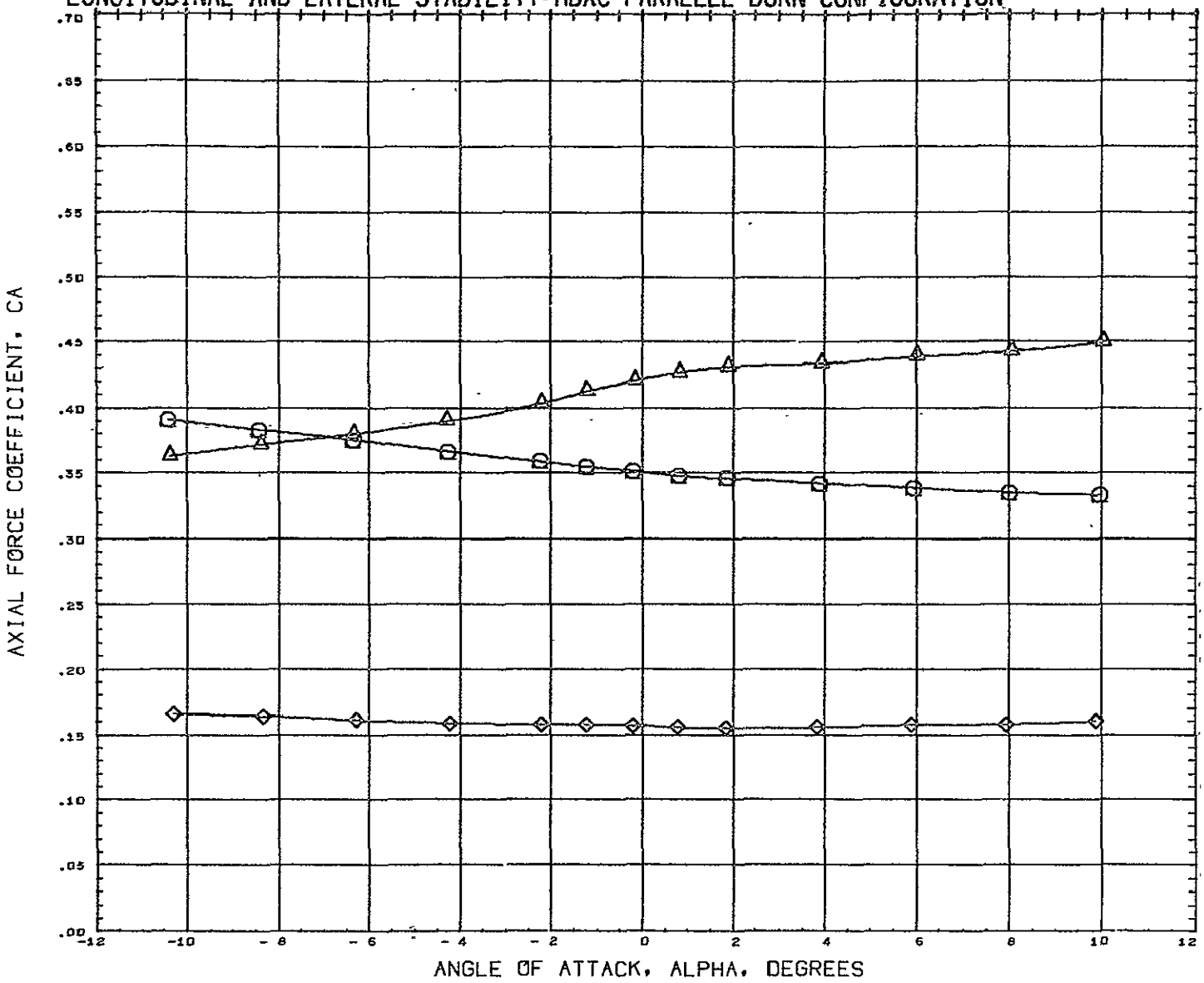
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 2.990

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



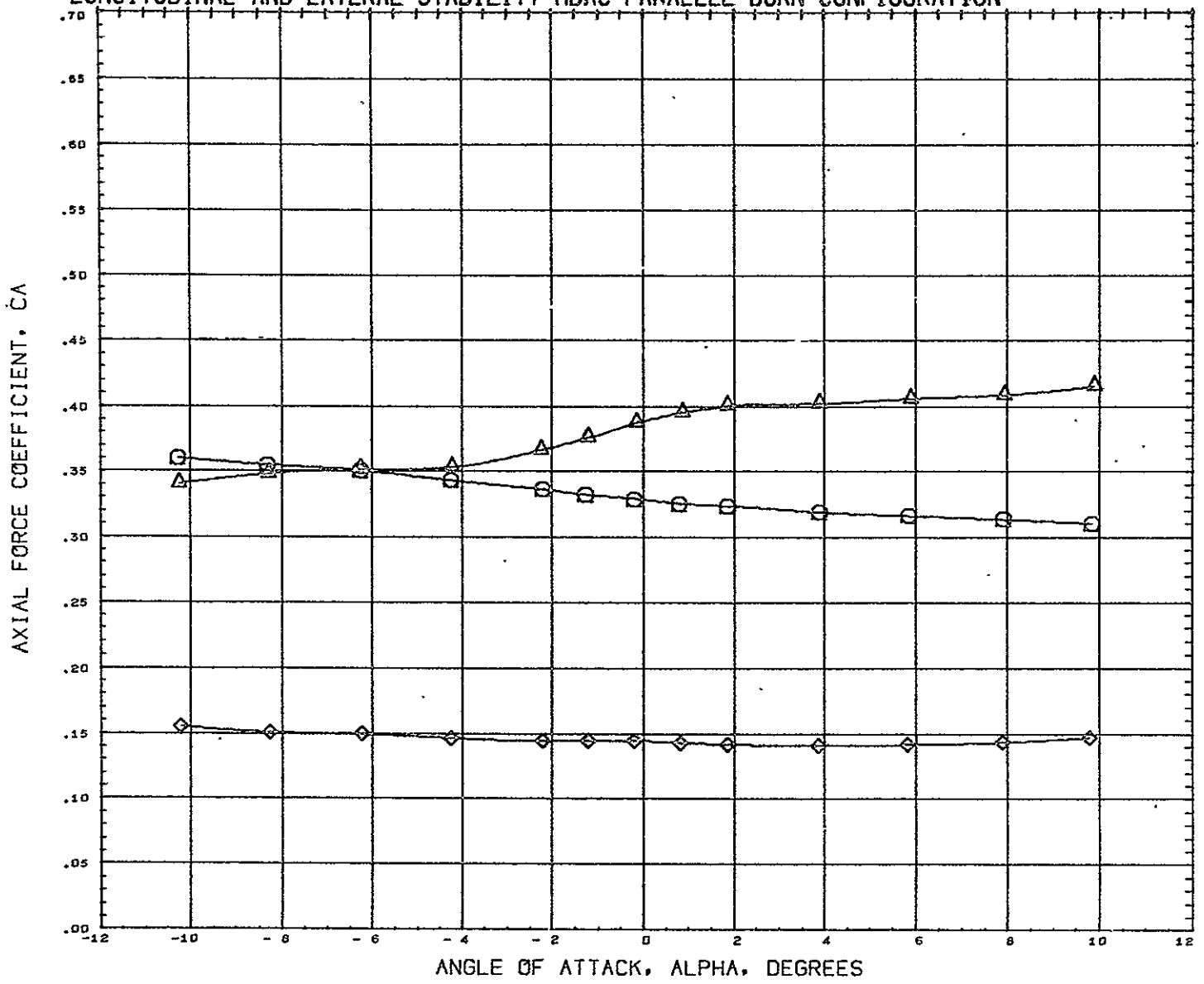
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0020	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



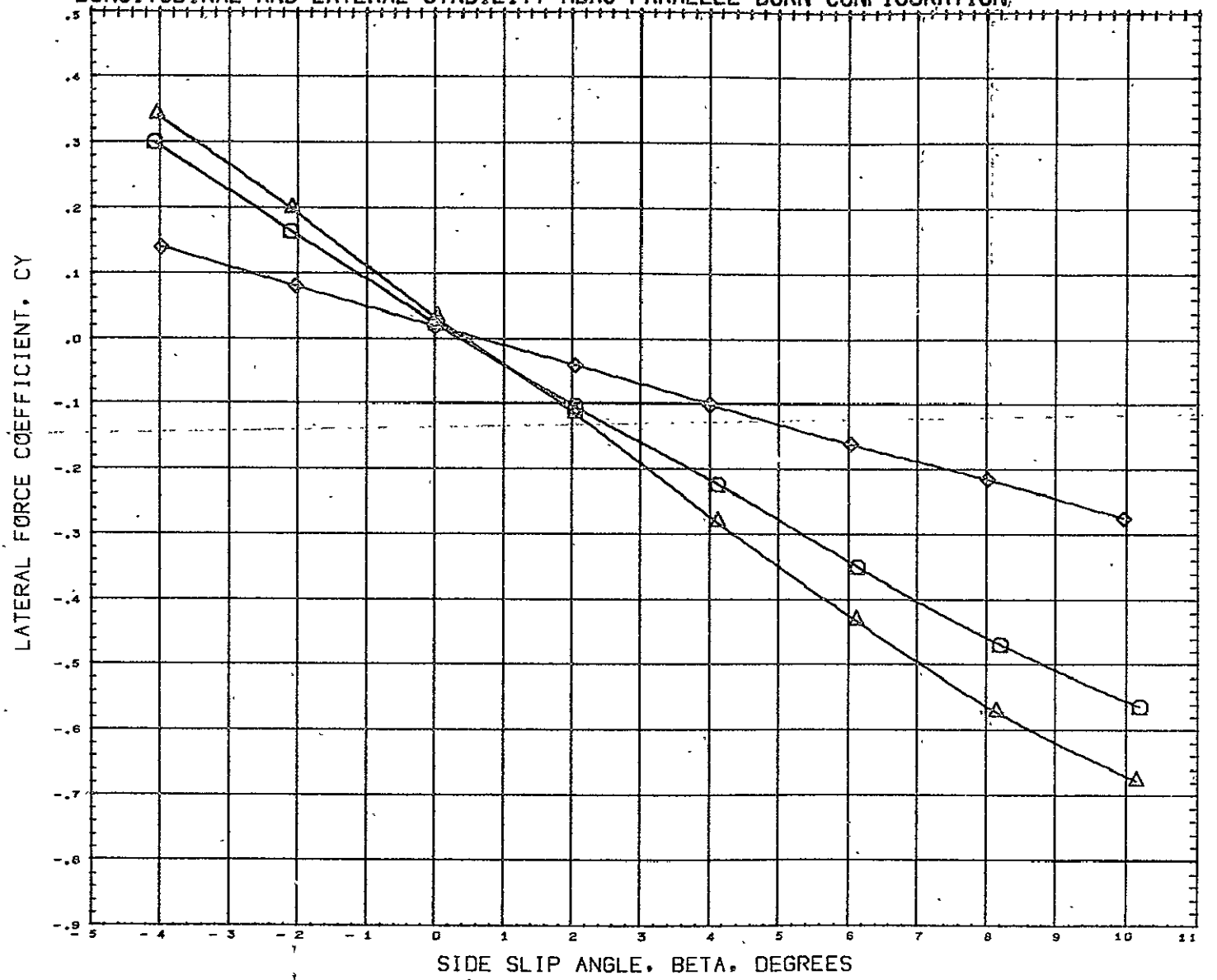
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 4.959

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



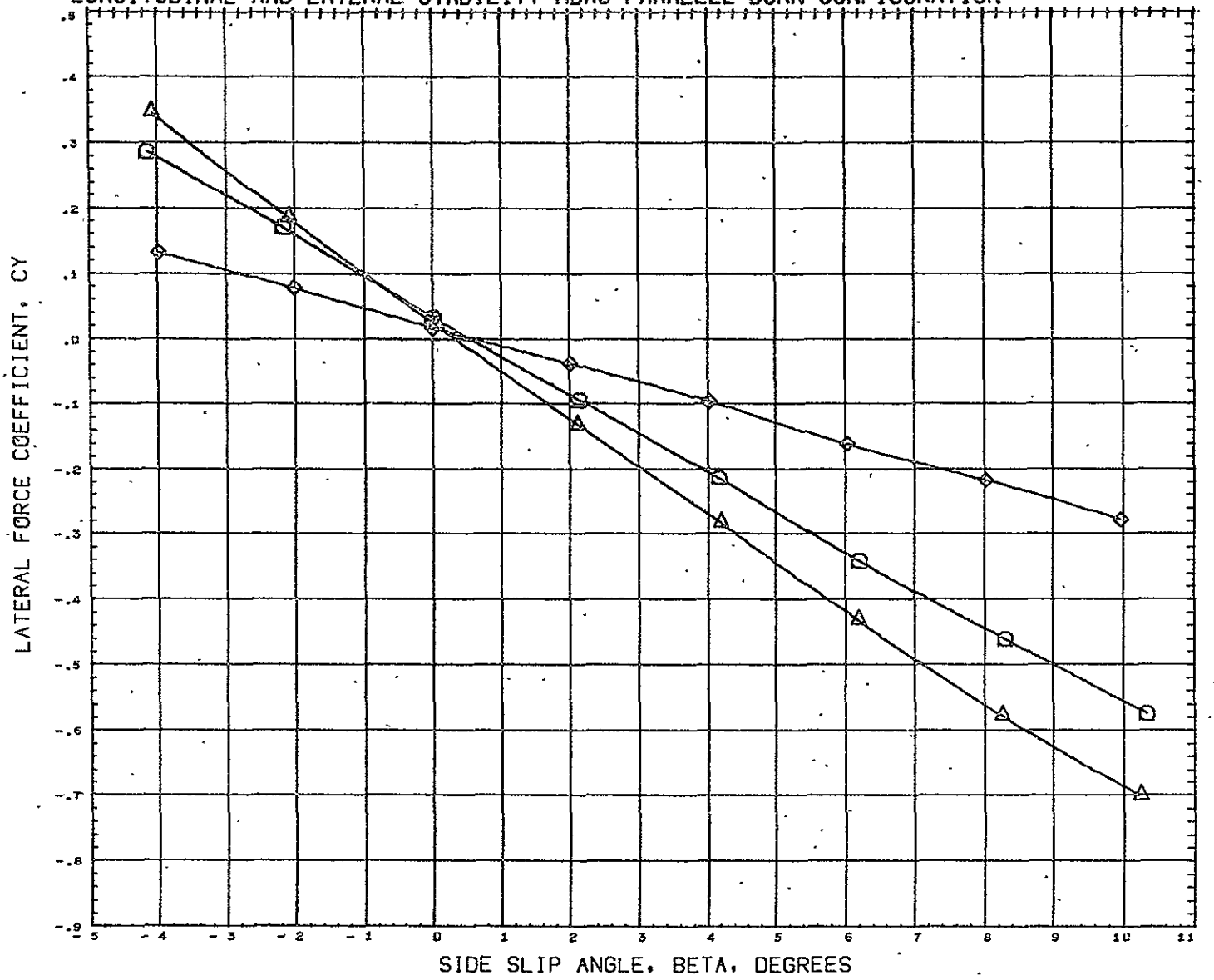
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.600

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



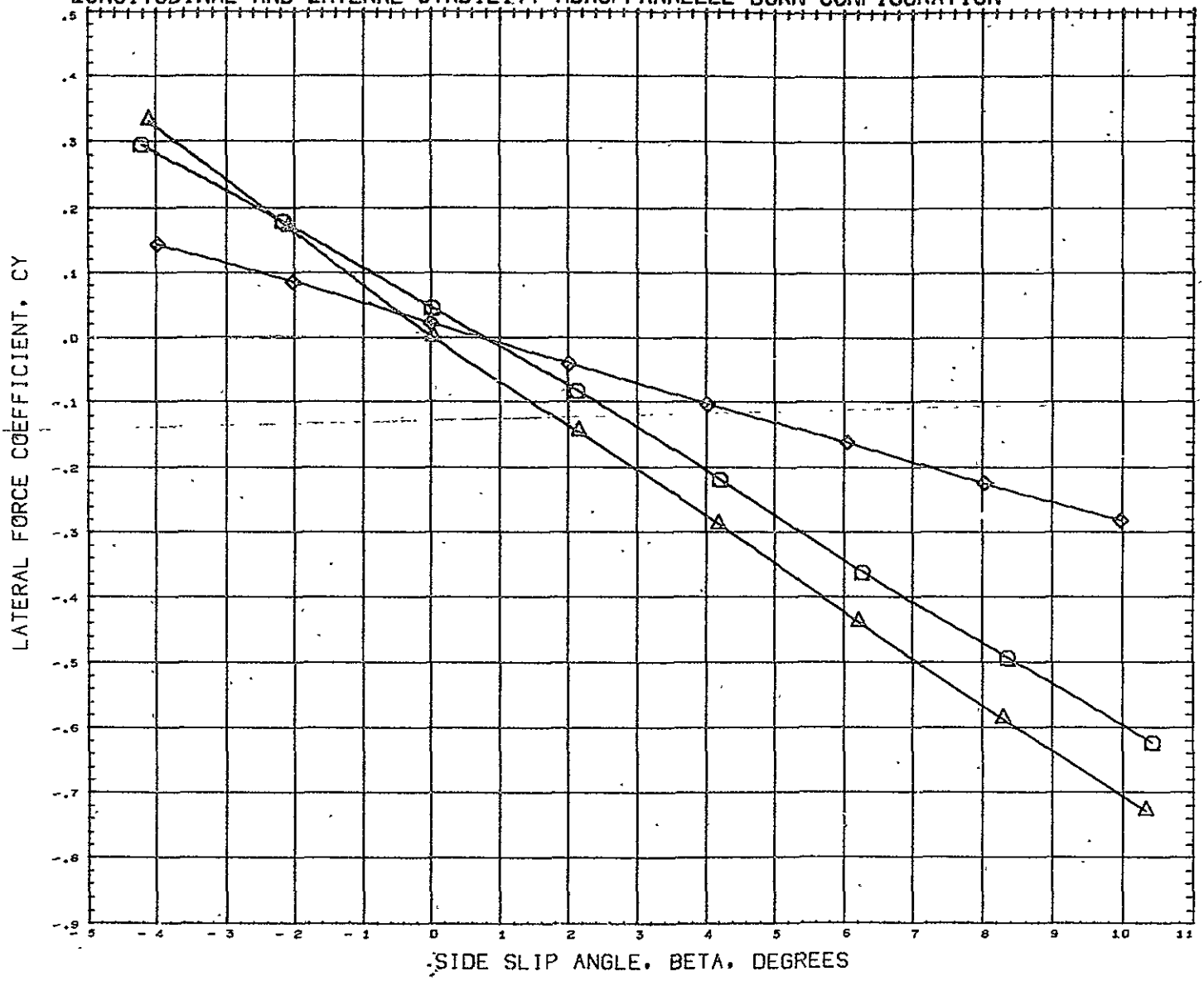
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(843012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(843022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(843002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.799

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



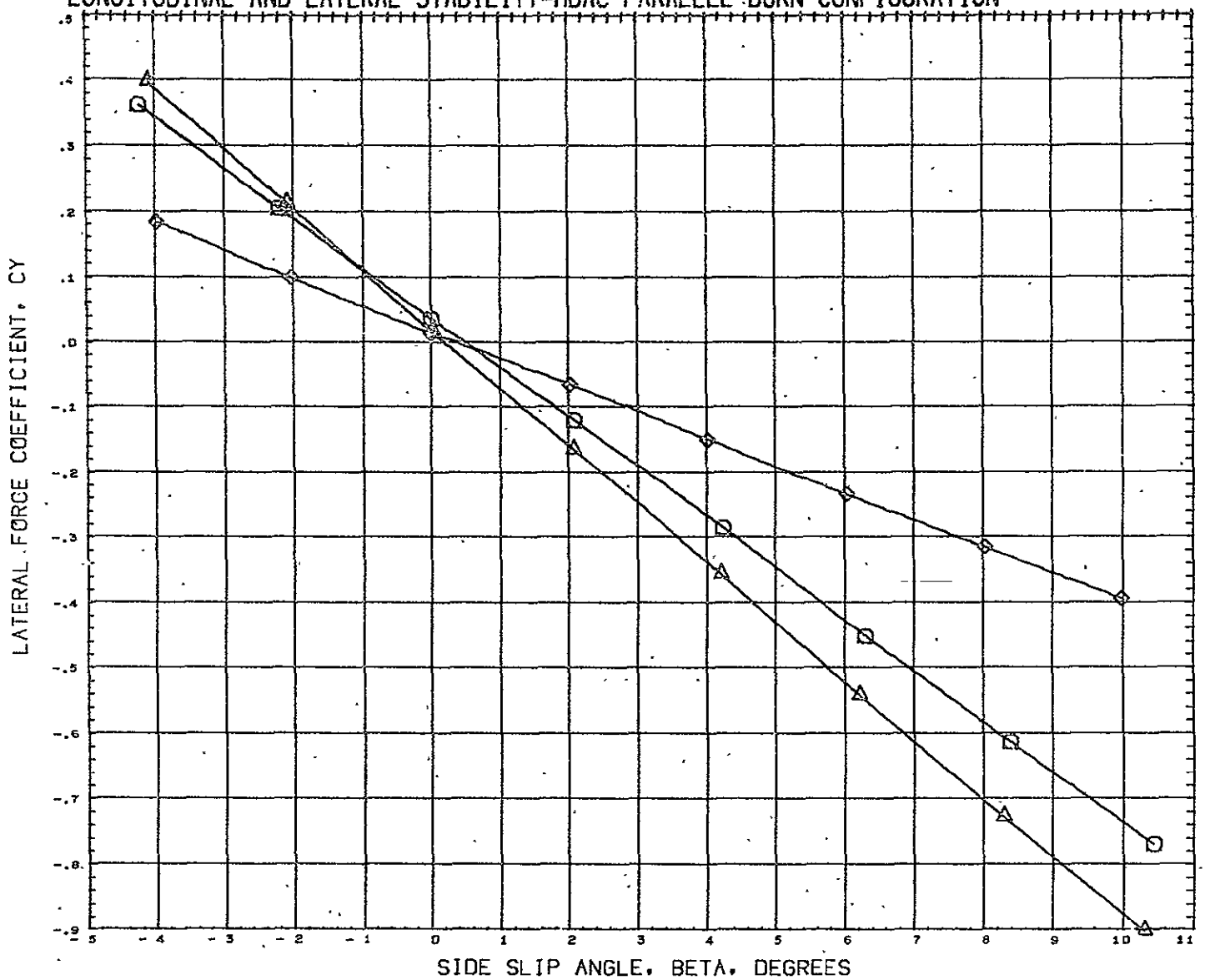
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.899

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



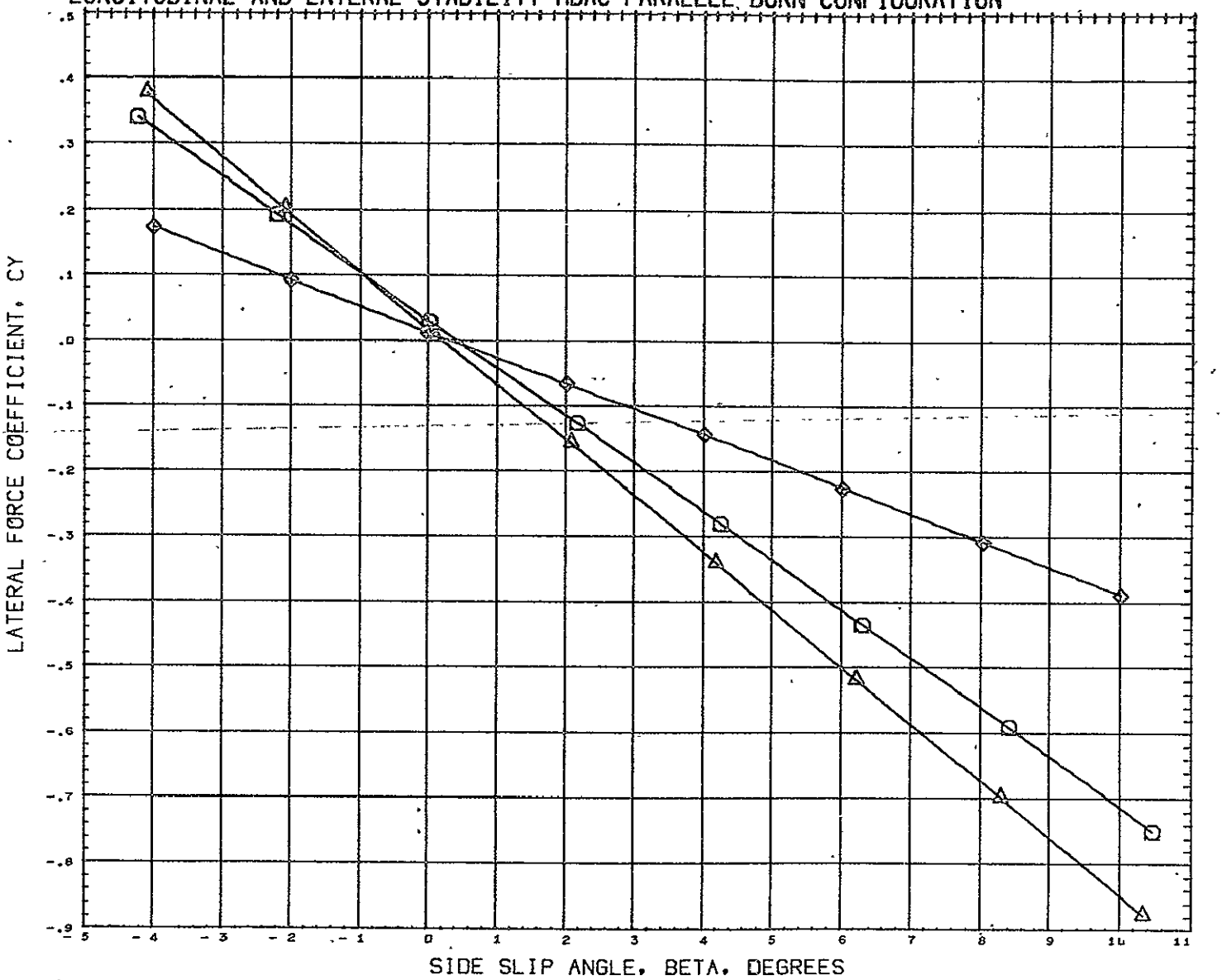
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



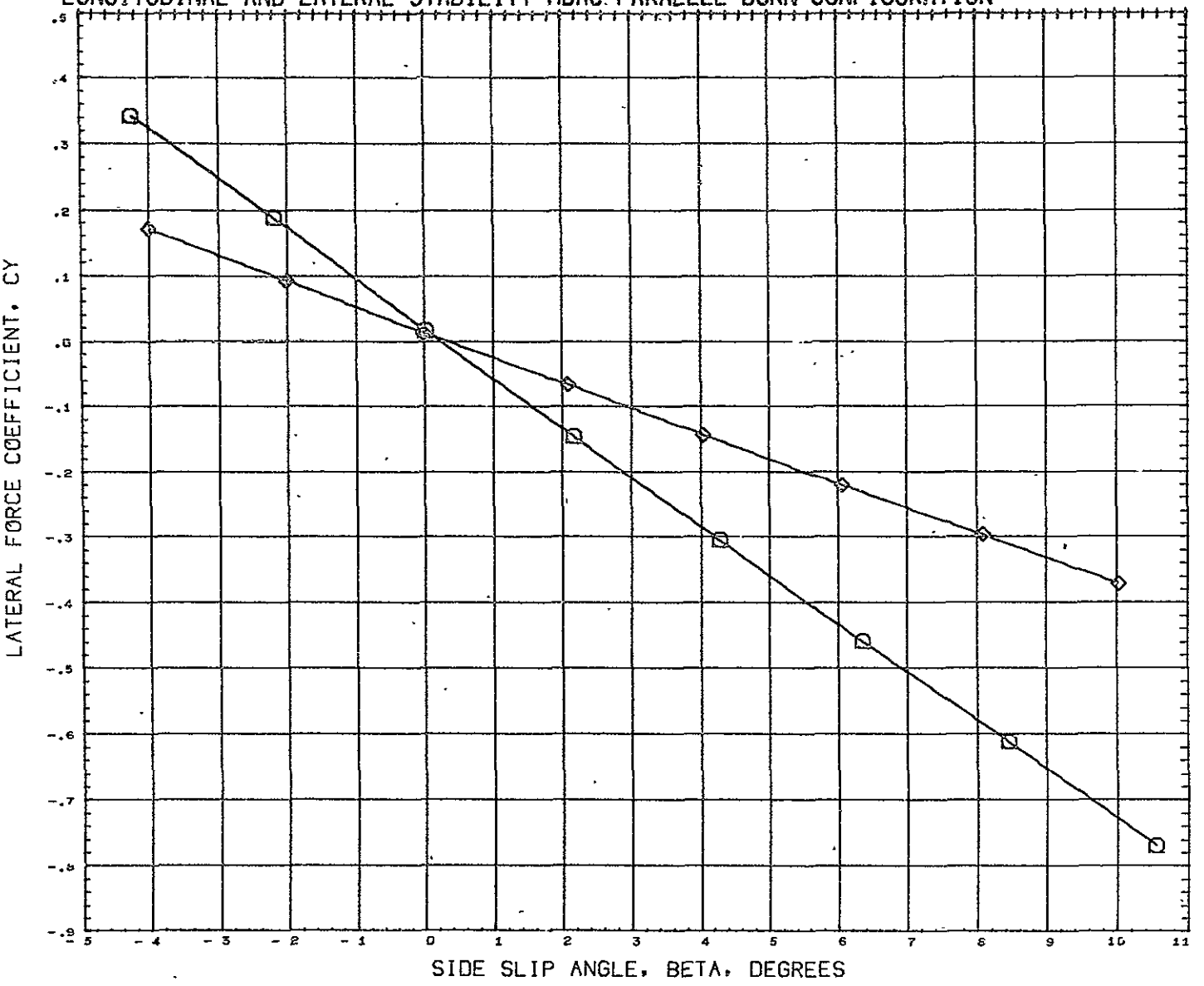
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.101

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



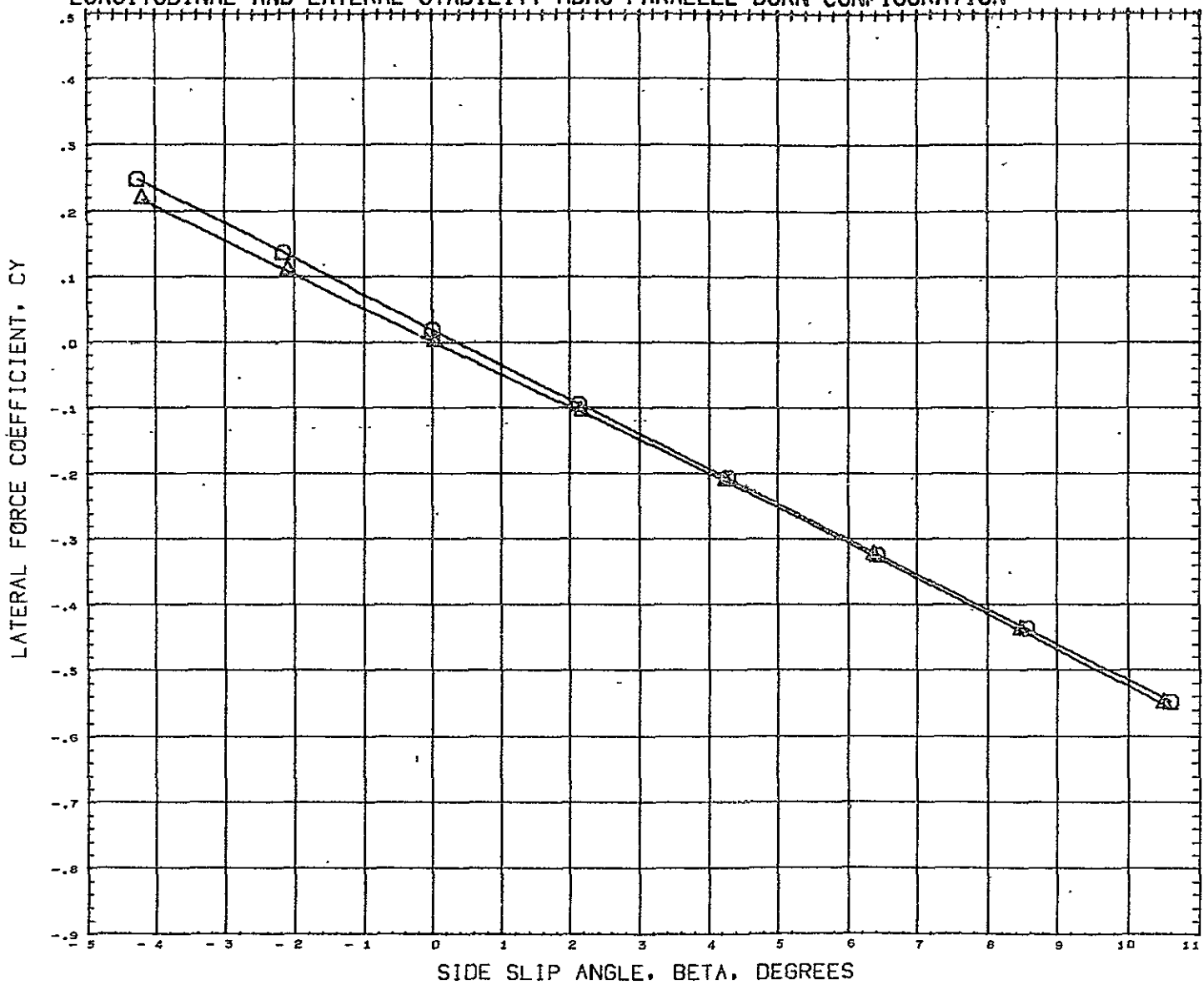
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS	
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.199

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



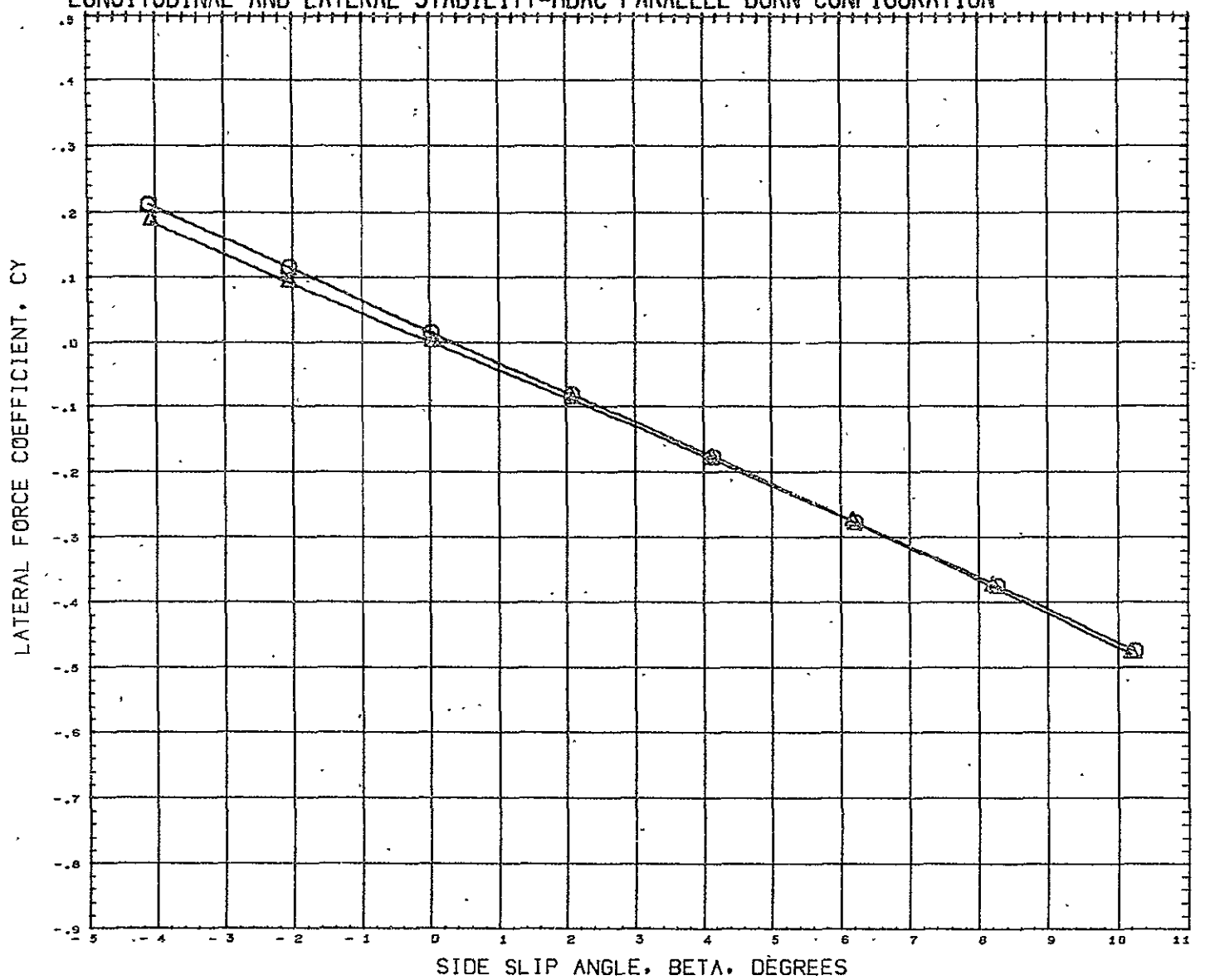
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L2
(B43002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

MACH 2.990

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET SYMBOL CONFIGURATION DESCRIPTION

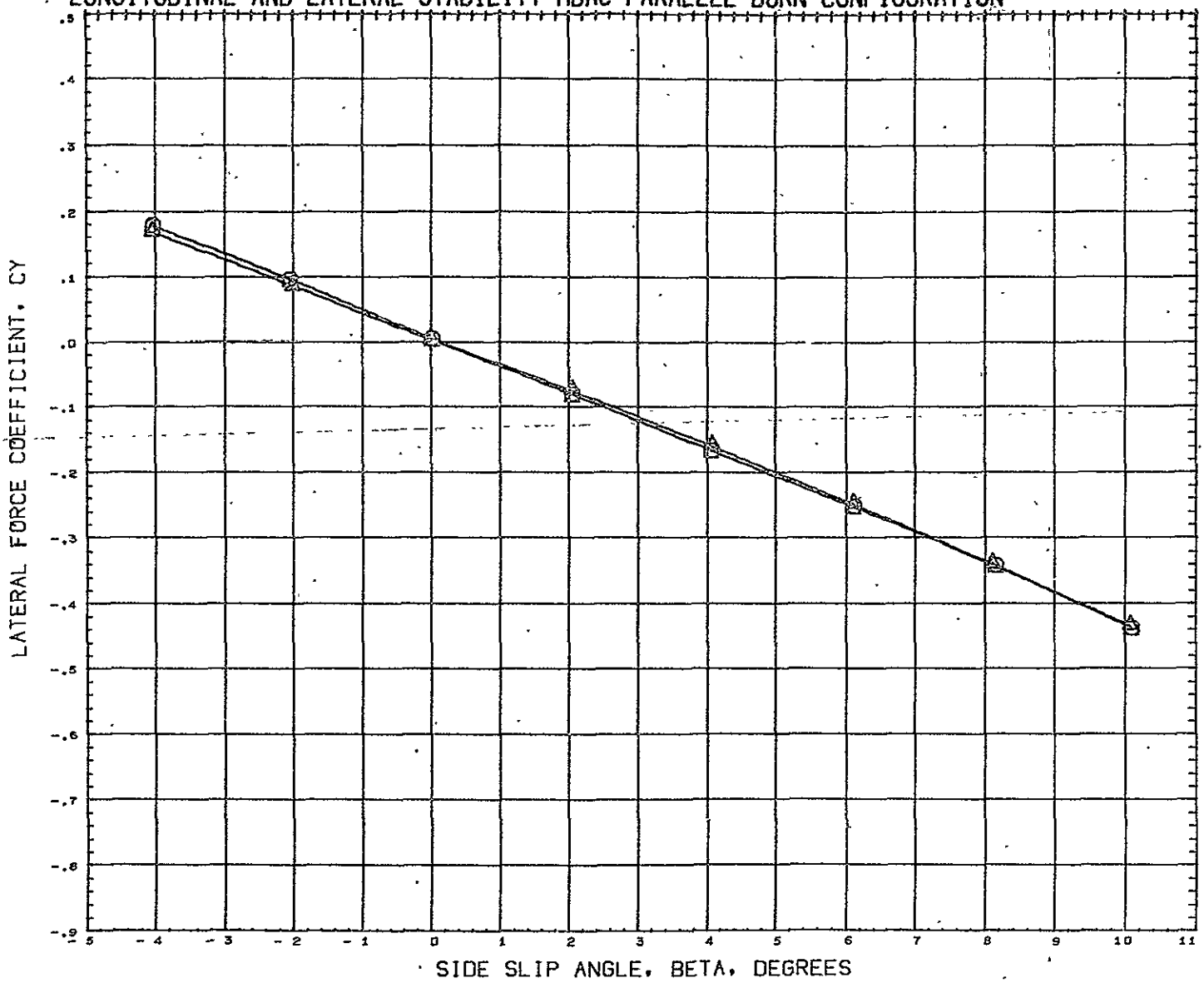
(843012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L1
(843022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L2
(843002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

MACH 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



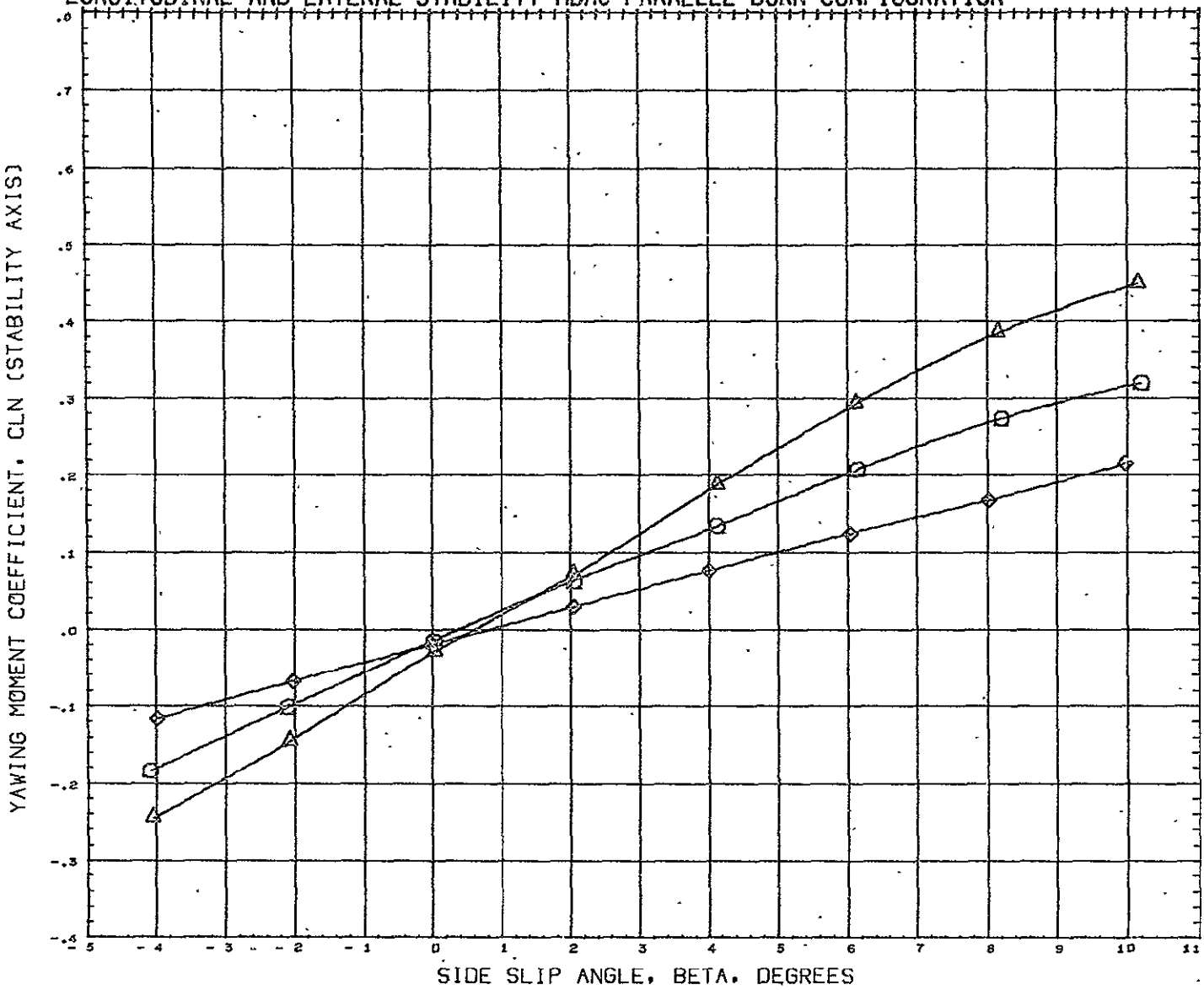
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)		MSFC 501 MDAC PAPALLEL BURN CONFIGURATION	L2
(B43002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS	

MACH 4.960

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0026	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



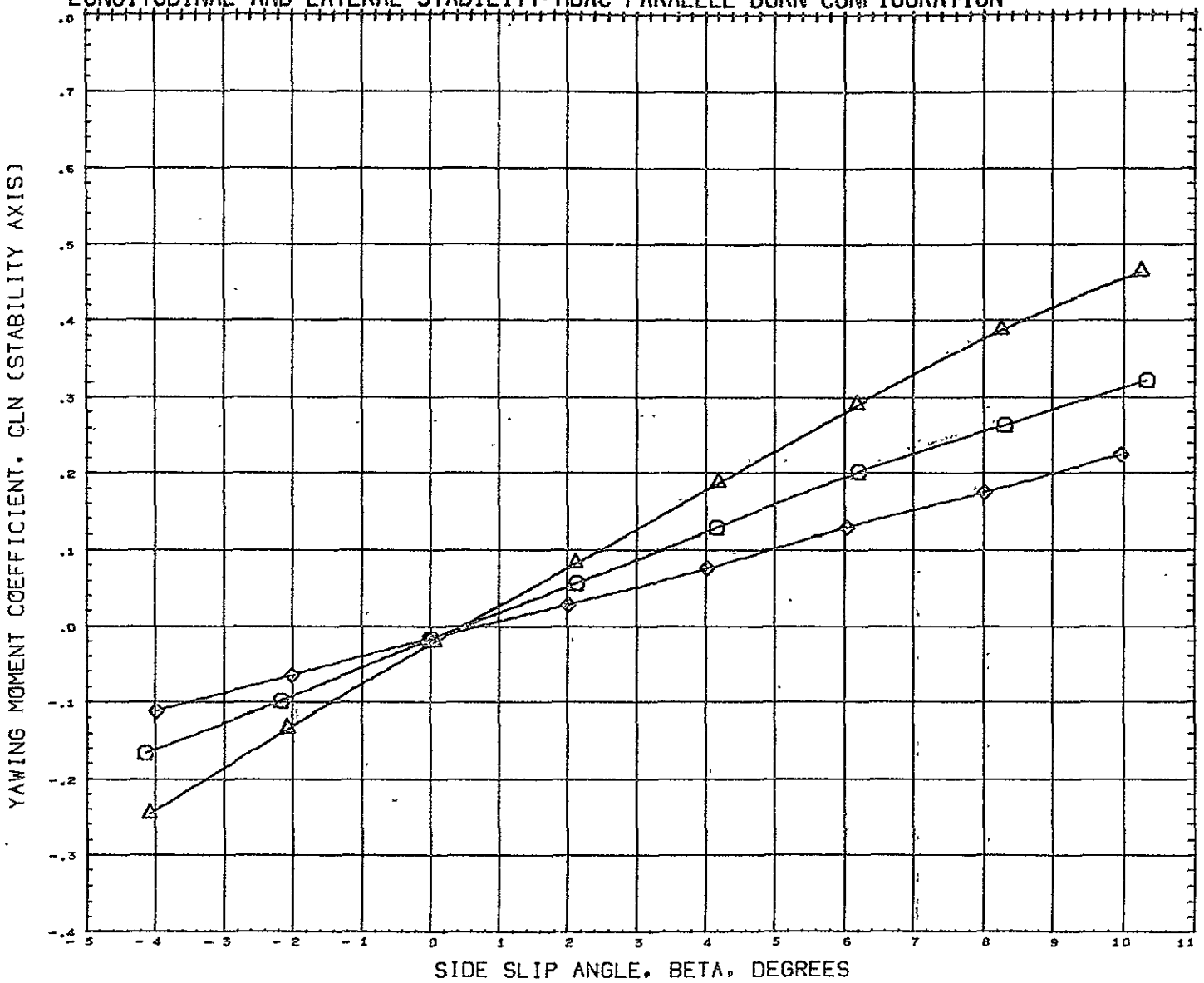
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 - MDAC PARALLEL BURN BOOSTER	B

MACH 0.600

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



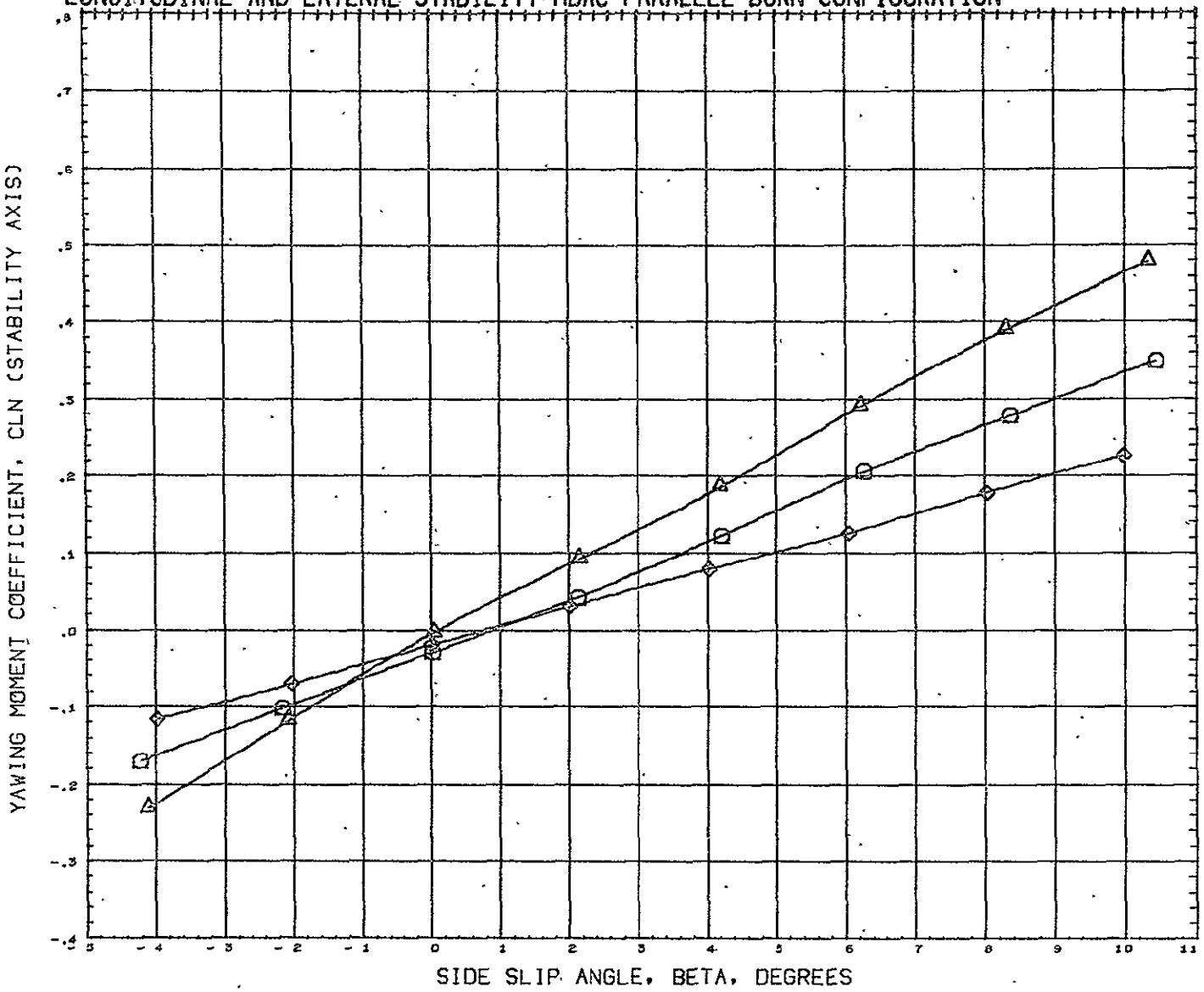
DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.799

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



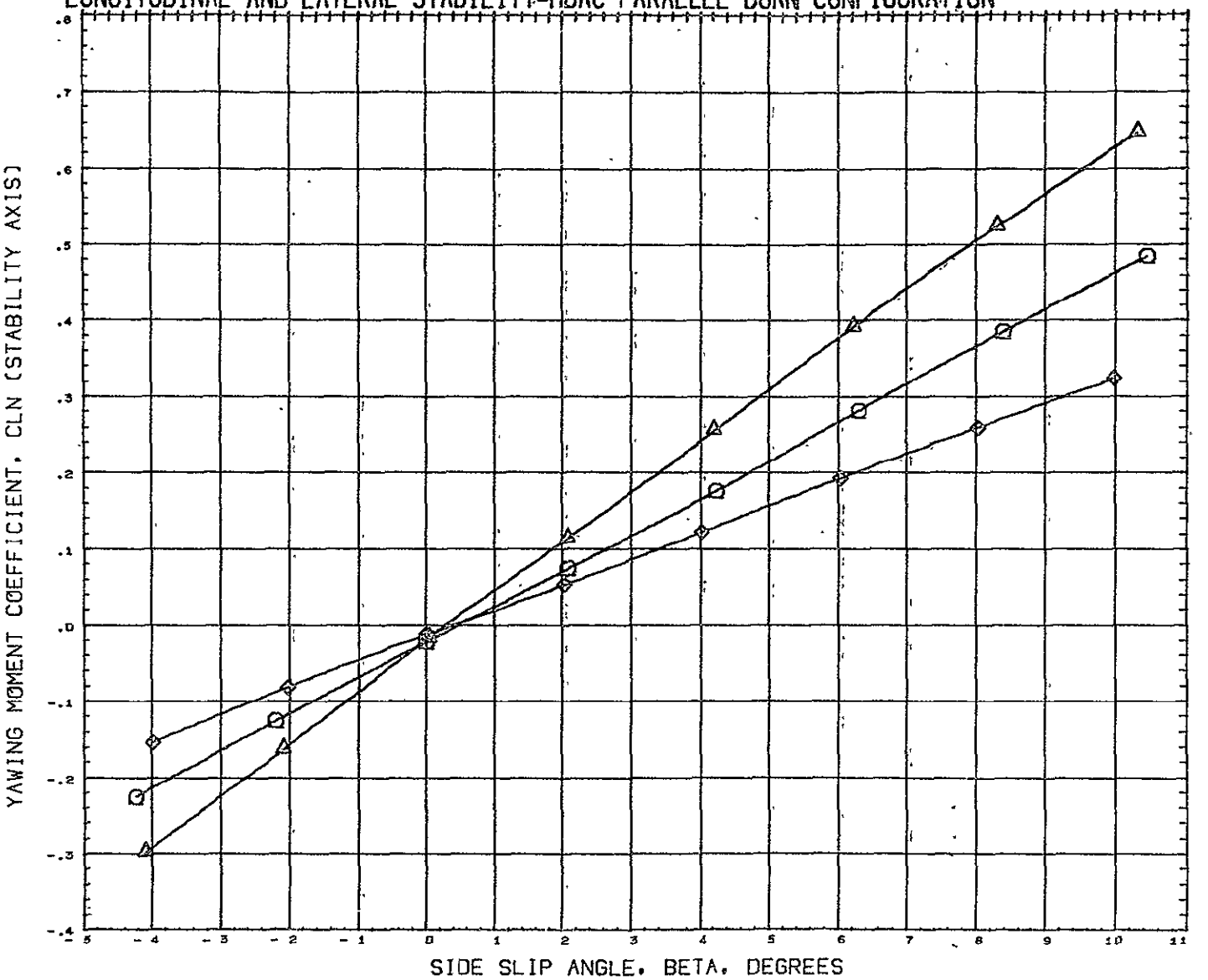
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(843012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(843022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(843002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.899

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



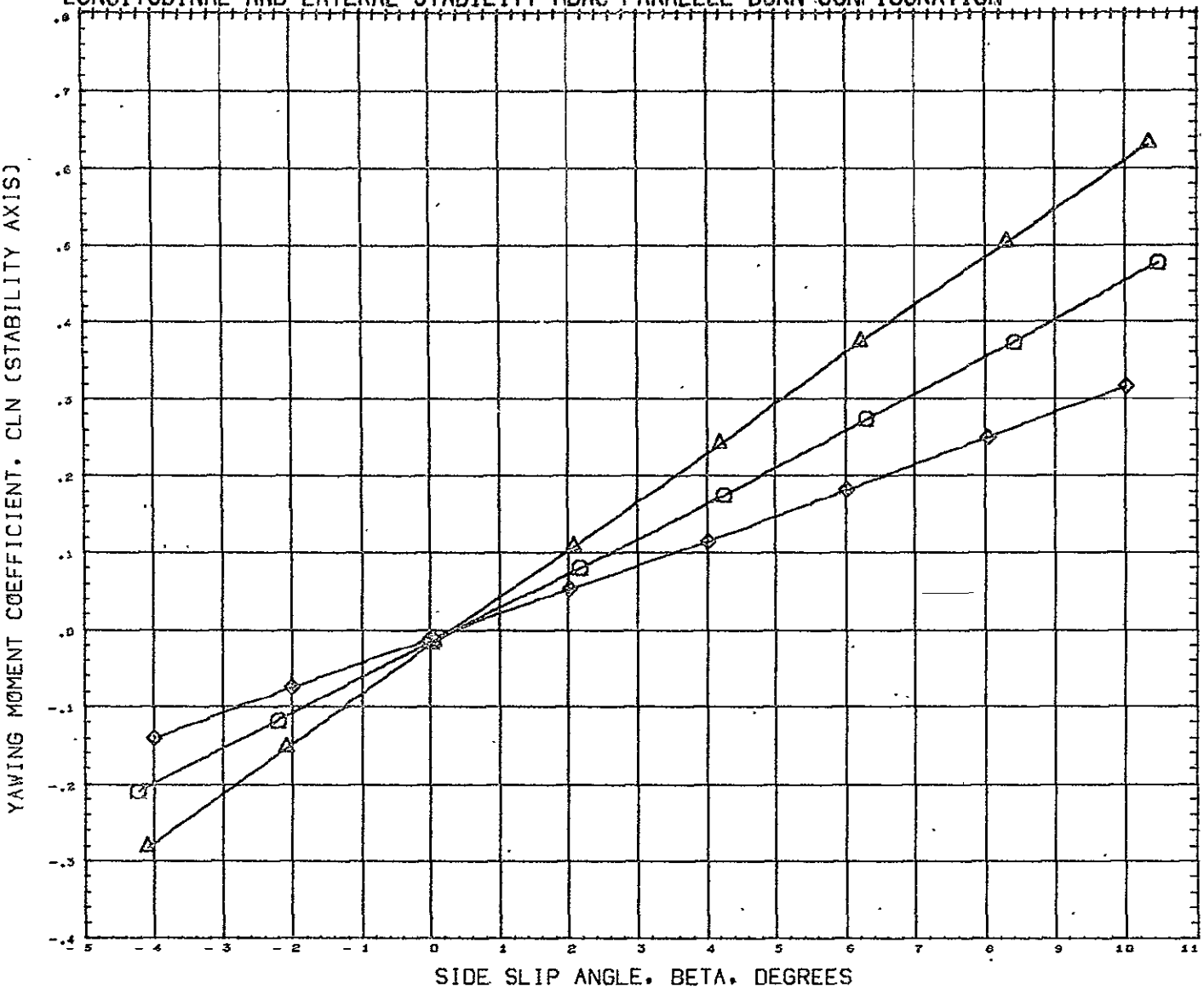
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(843012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(843022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(843002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



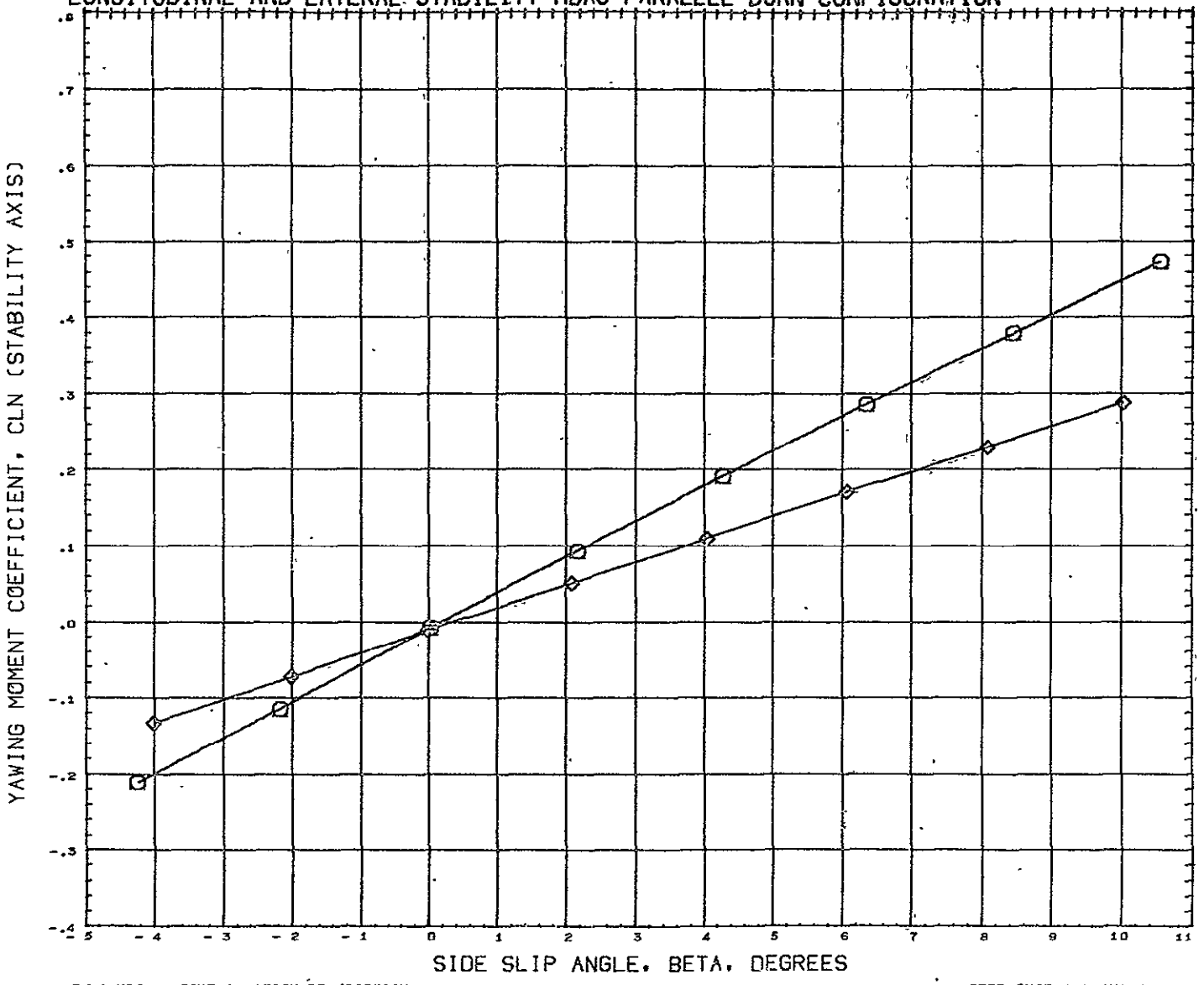
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.101

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

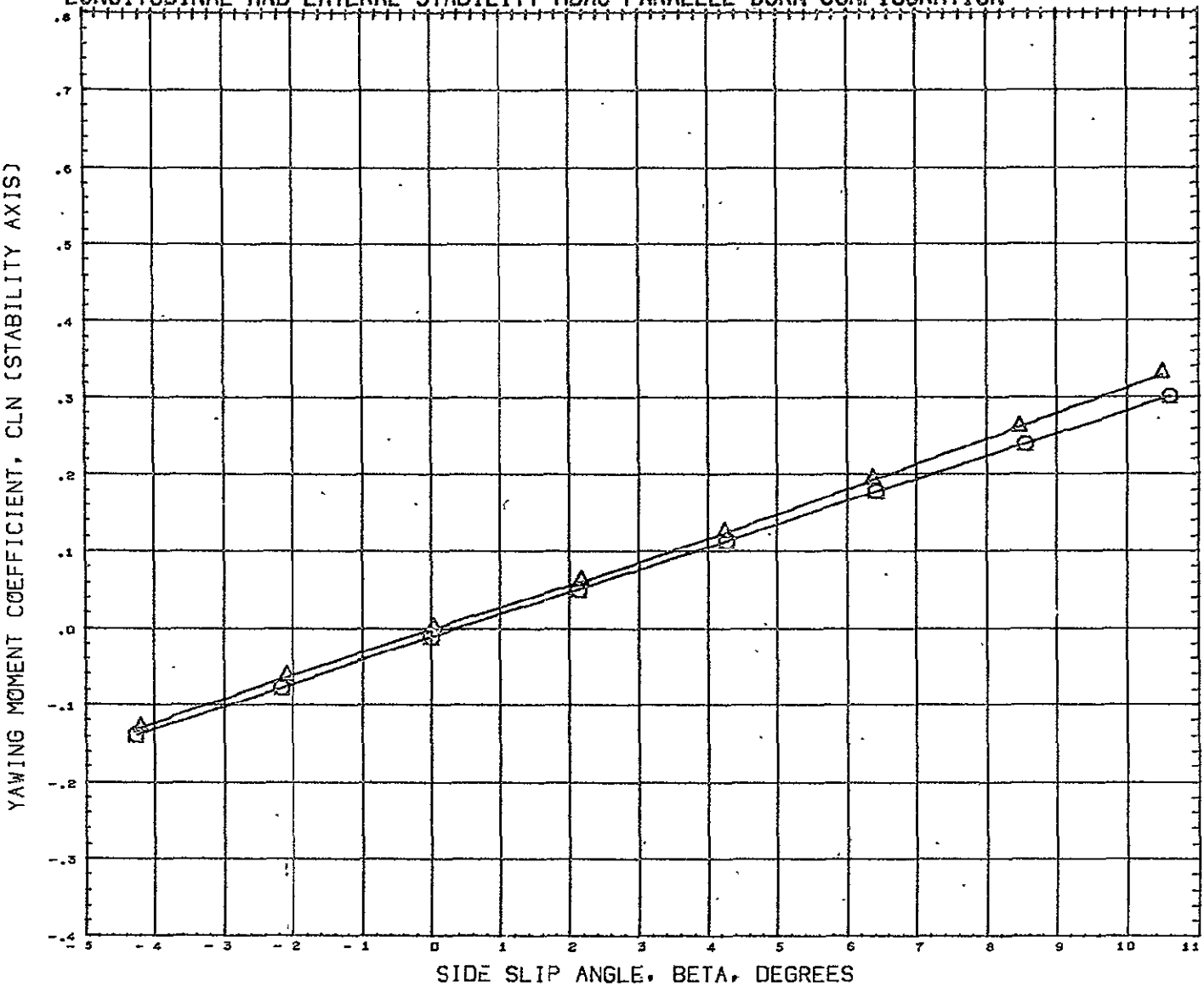


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L1
(B43022)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS
(B43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER

MACH 1.199

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



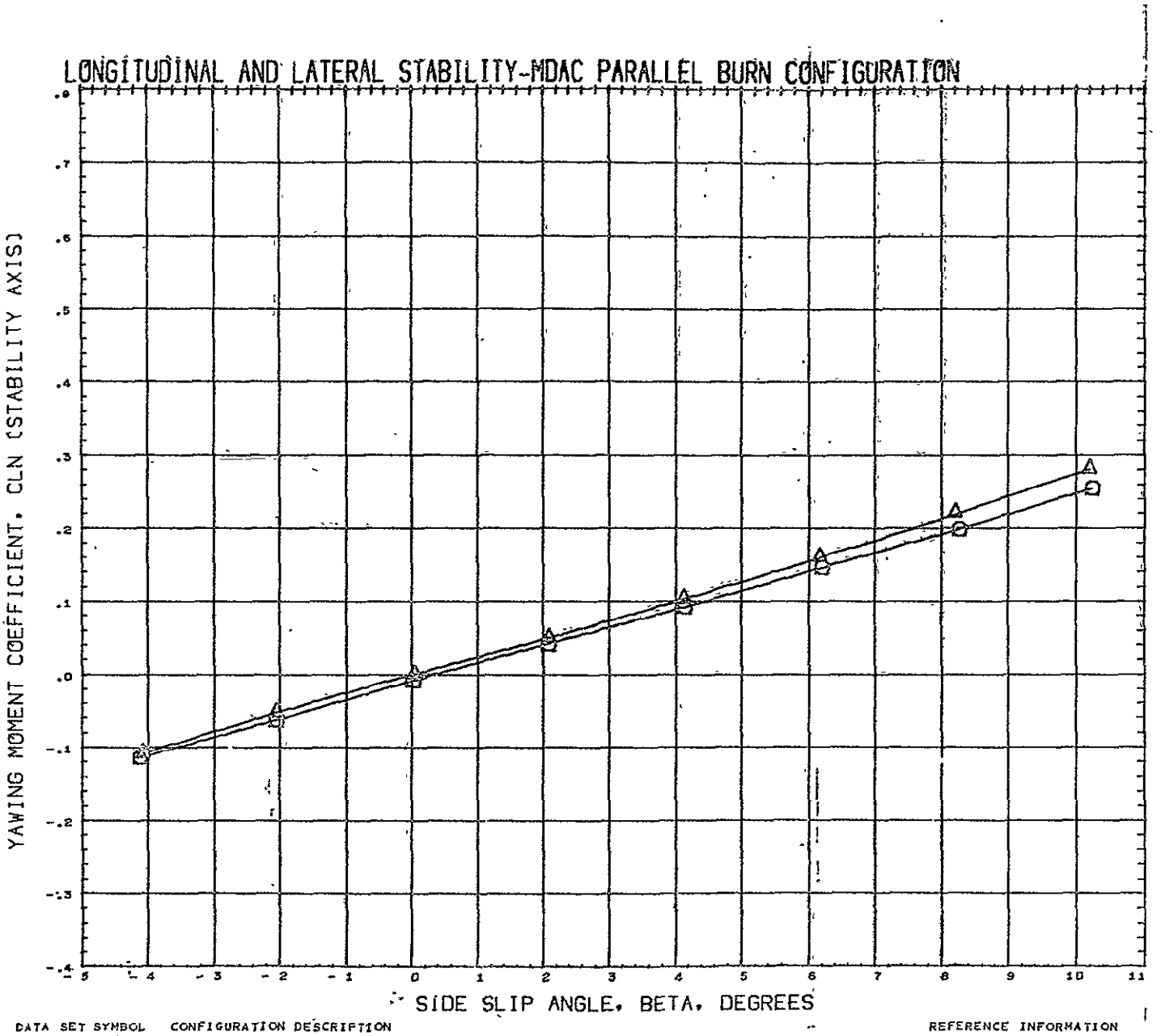
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS	

MACH 2.990

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



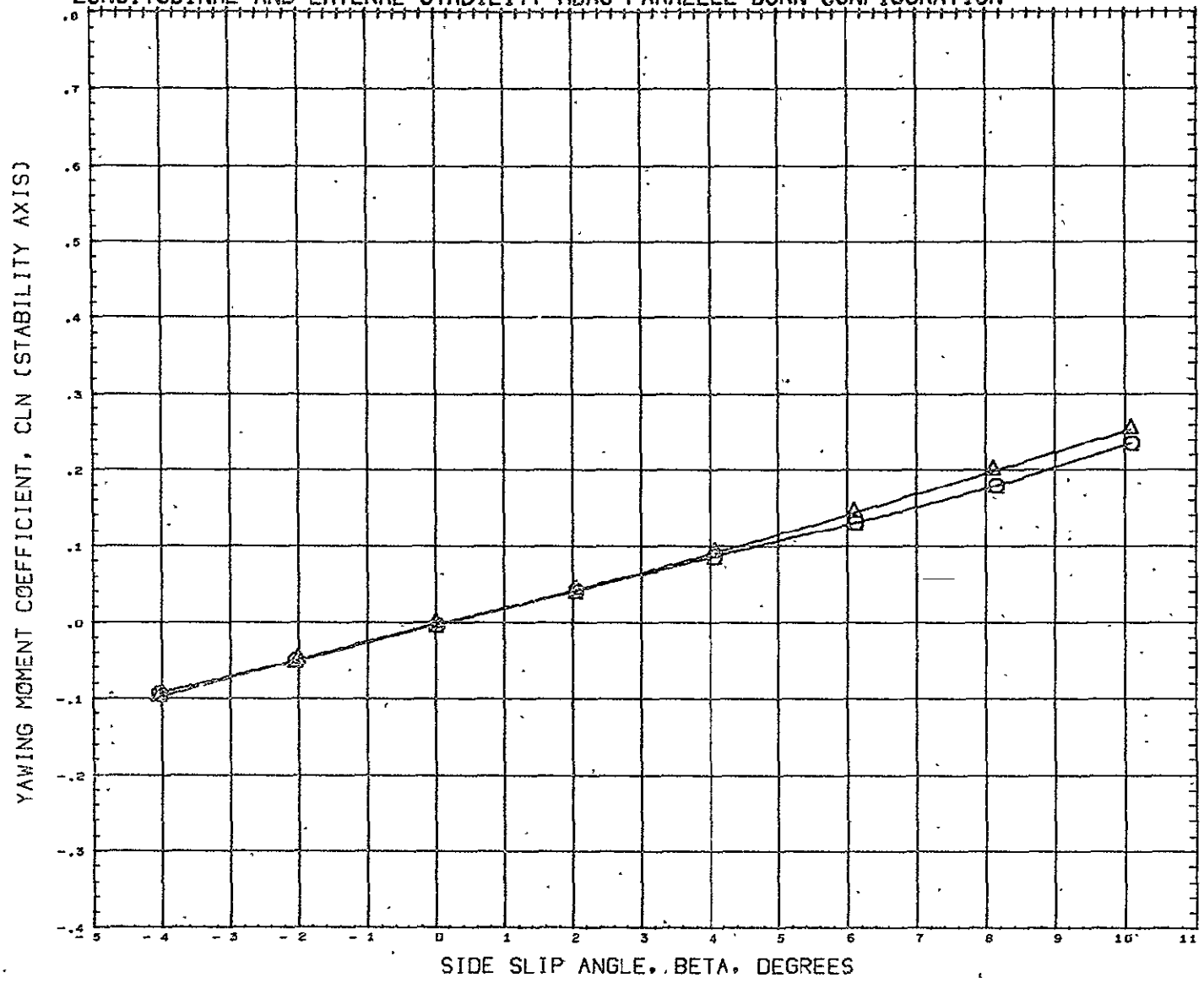
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(843012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(843022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(843002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS	

MACH 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRF	0.0000	IN.
YMRF	0.0000	IN.
ZMRF	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



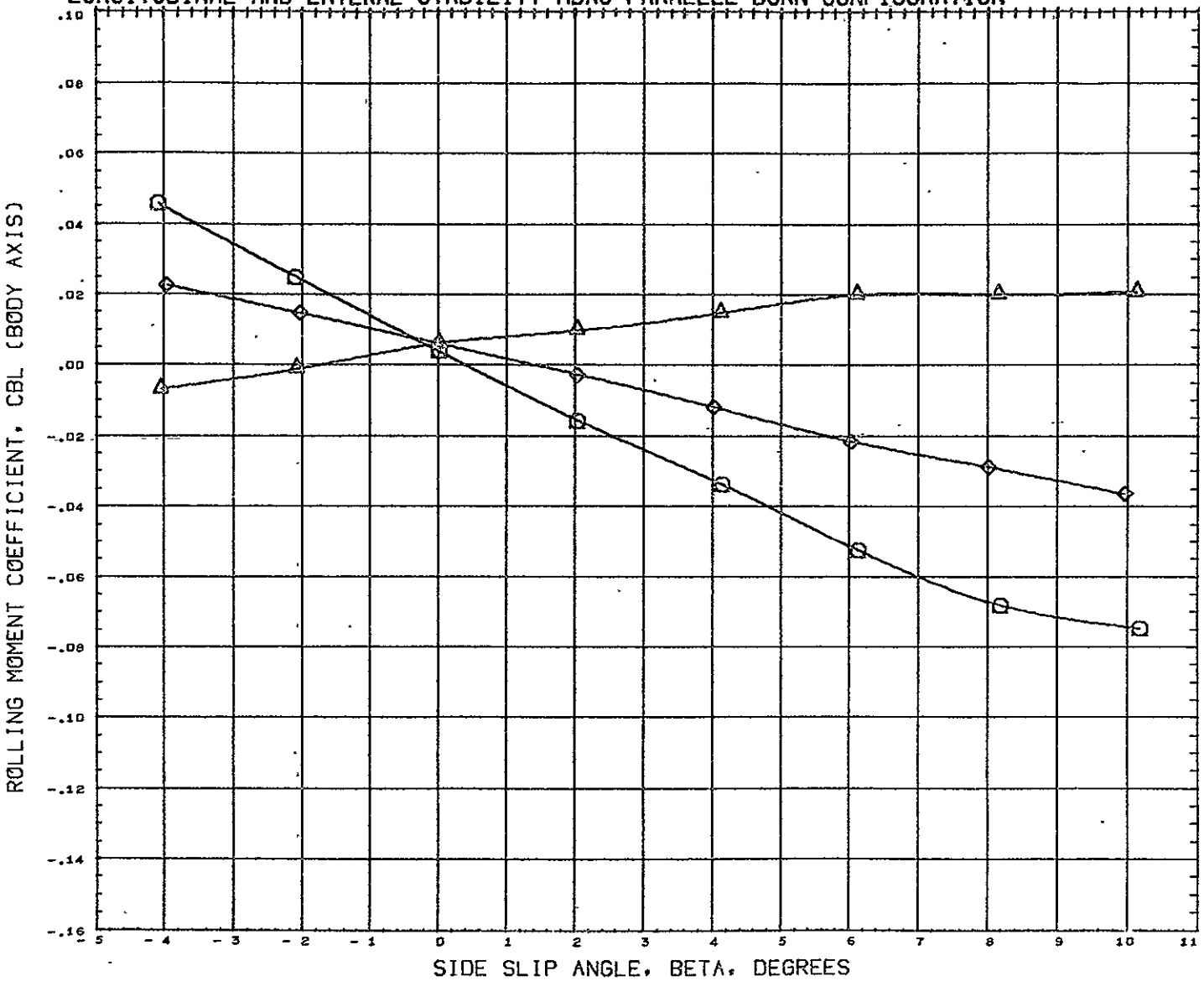
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(B43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(B43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(B43002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS	

MACH 4.960

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



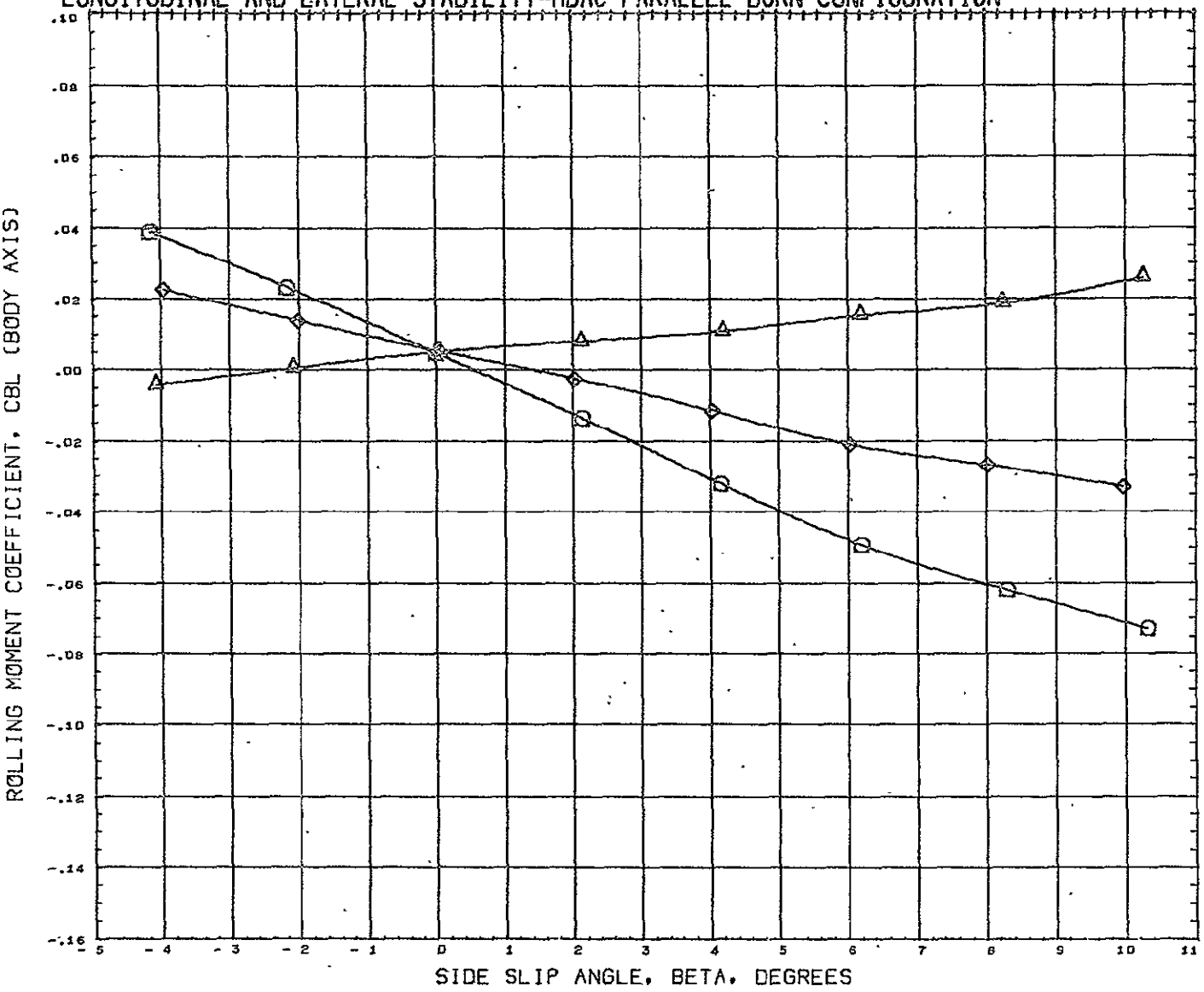
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.600

-REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

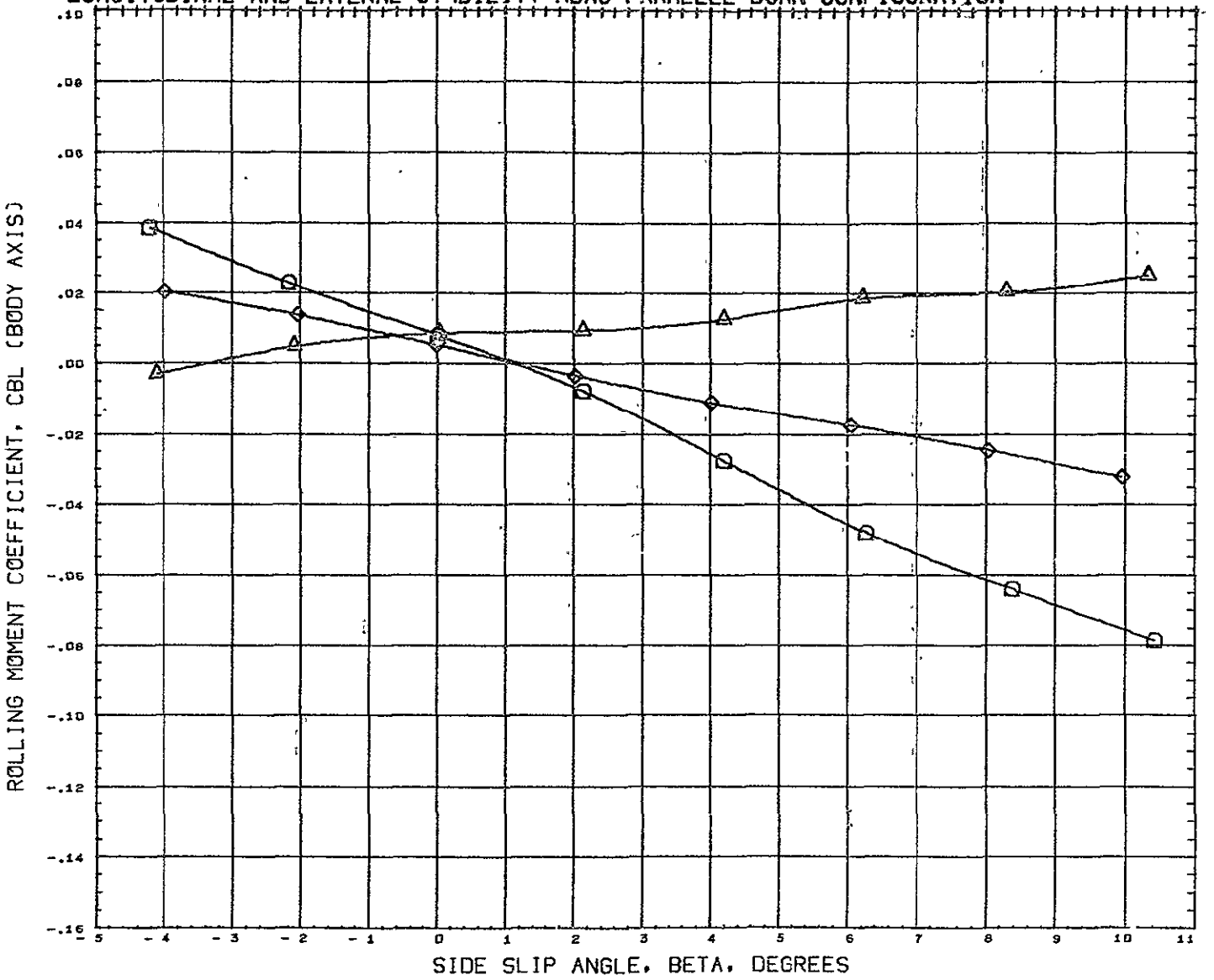


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.799

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



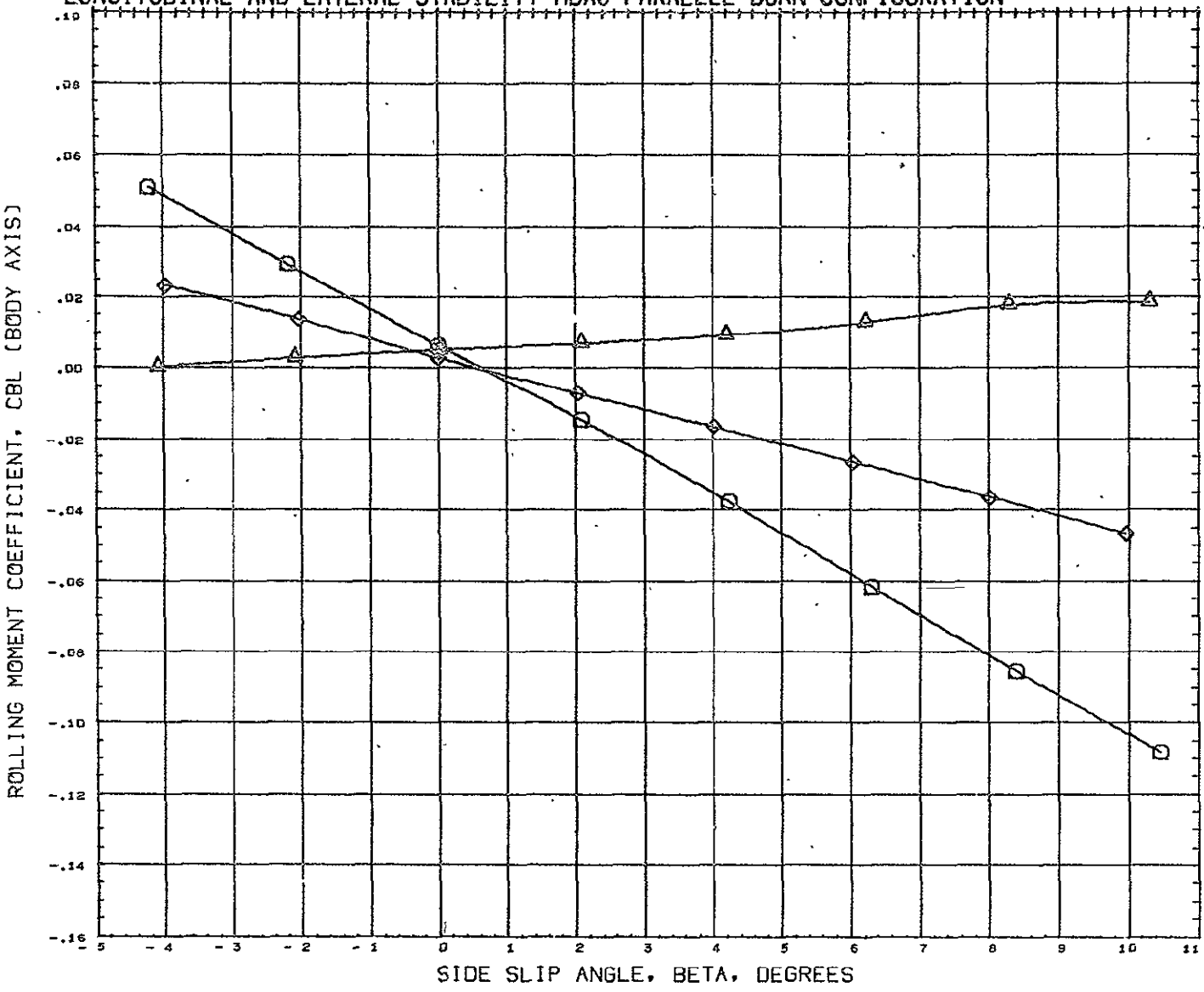
DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 0.899

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

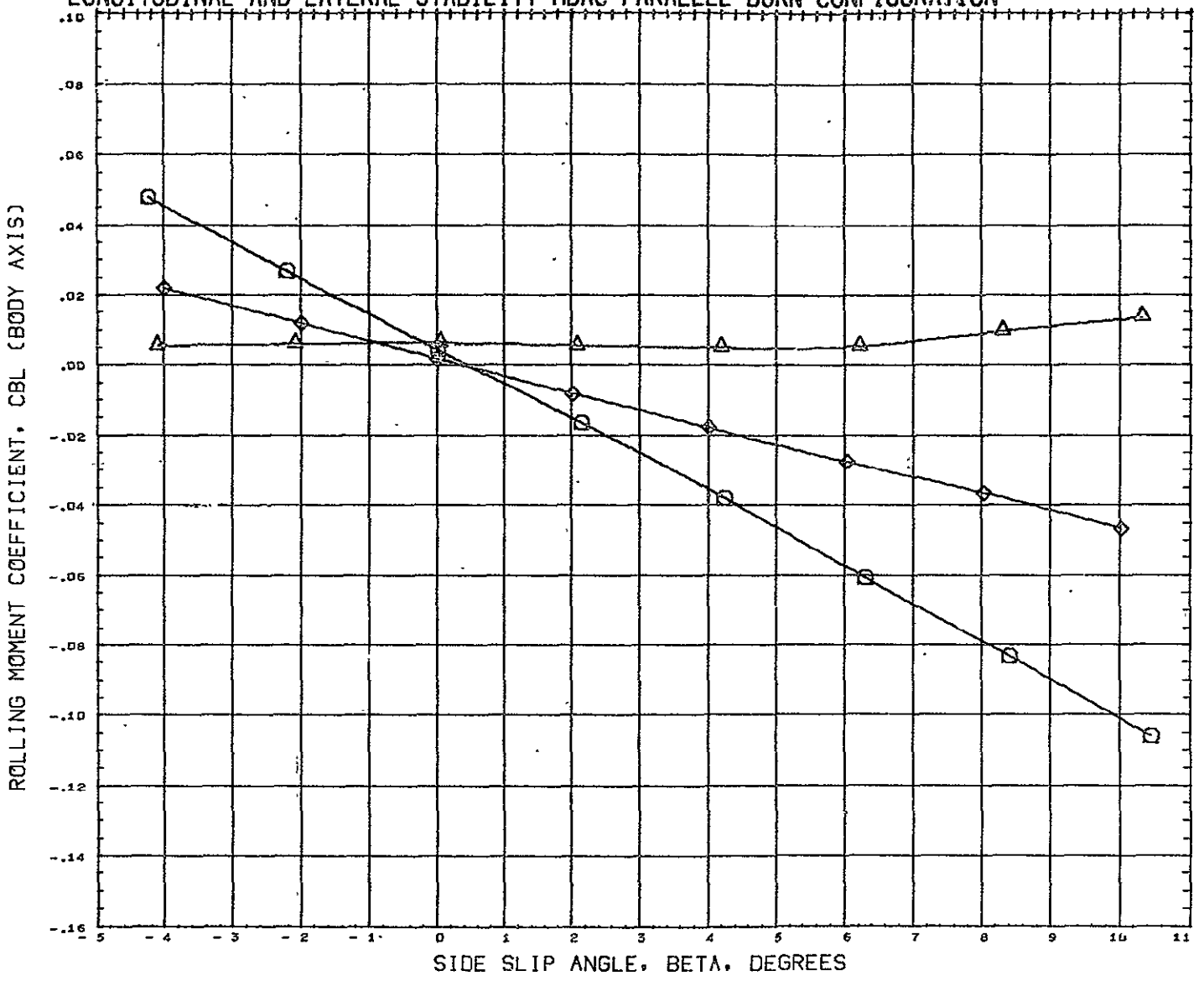


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

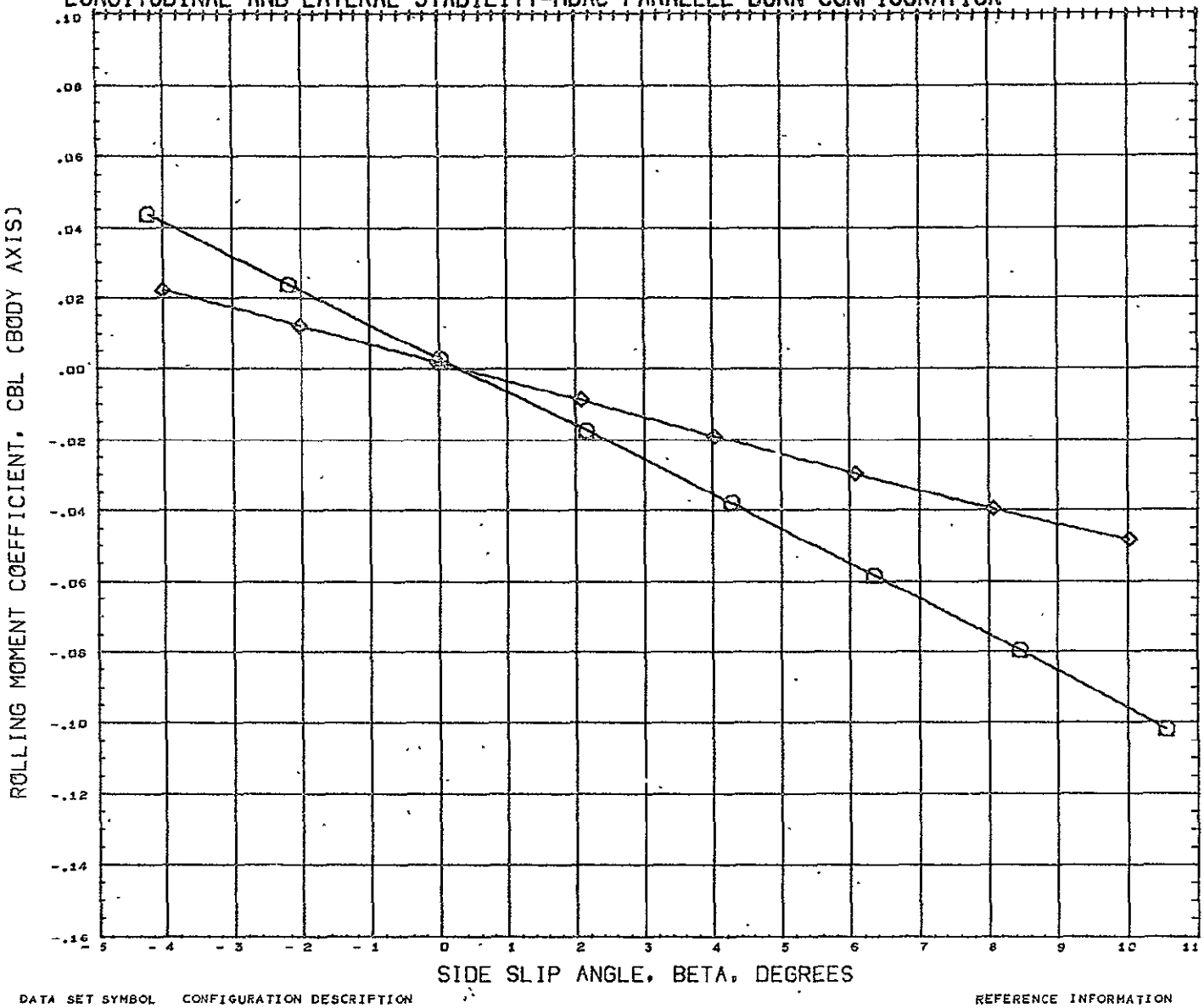


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(A43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.101

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



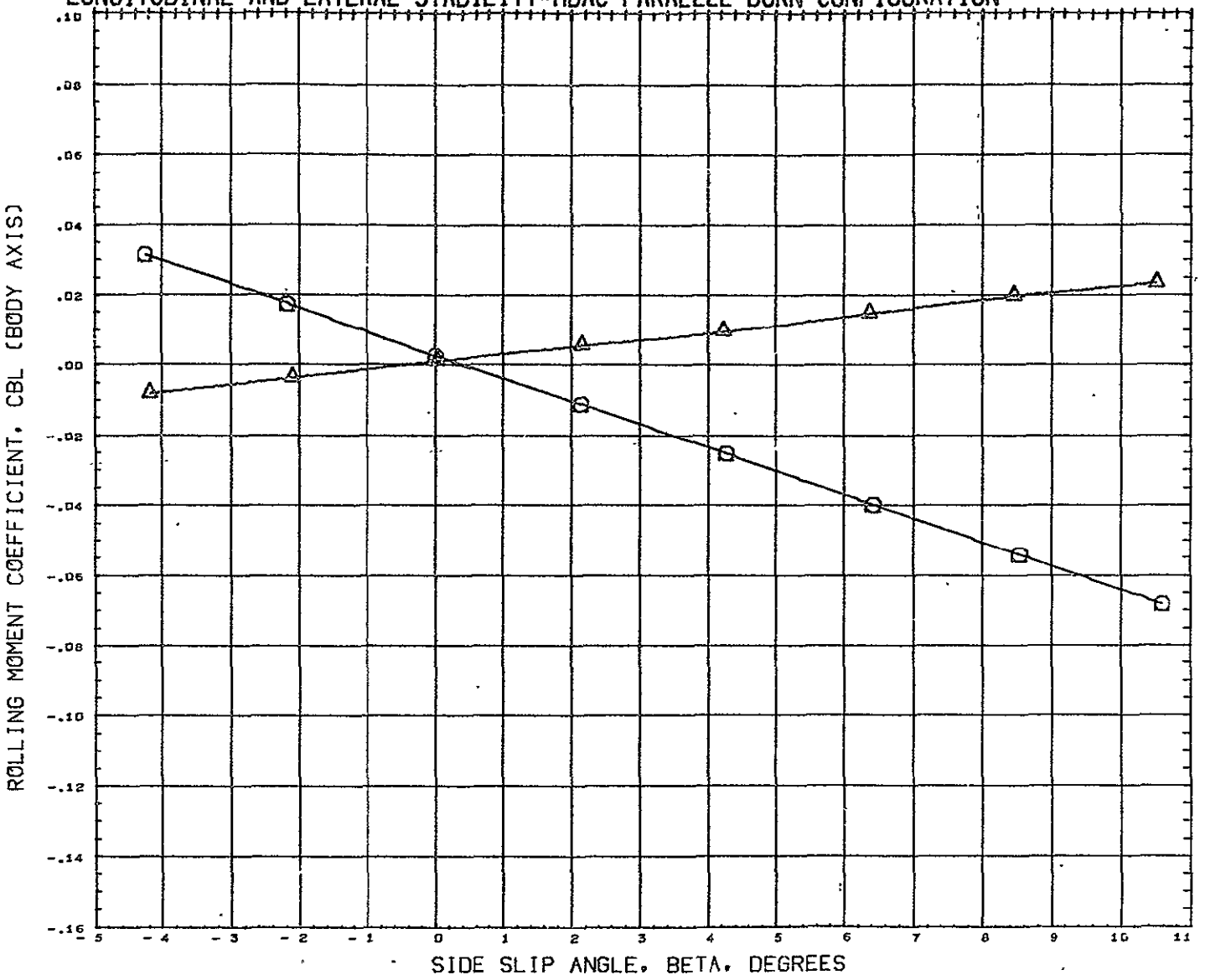
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(A43022)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS	
(A43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

MACH 1.199

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

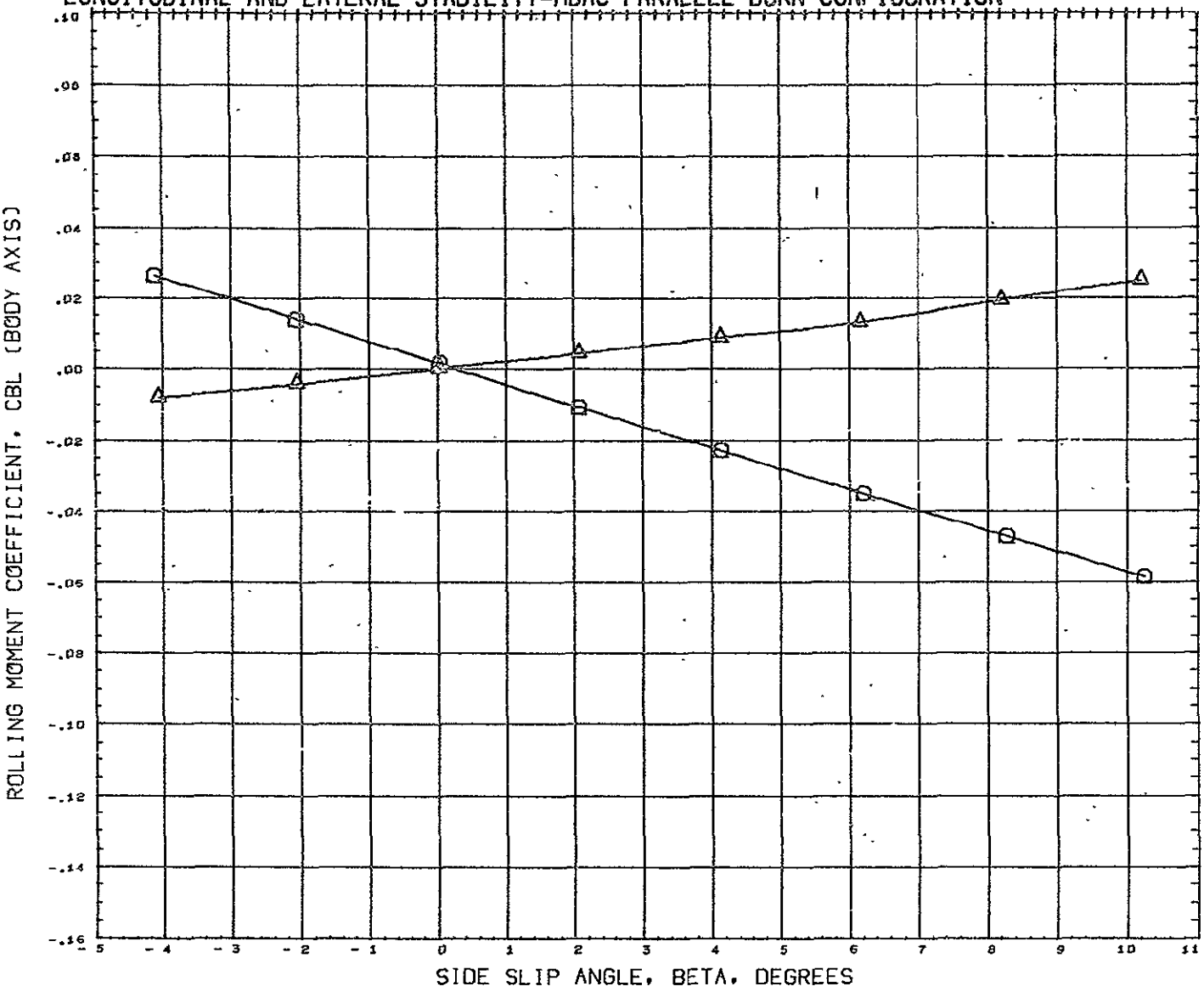


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L2
(A43092)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

MACH 2.990

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

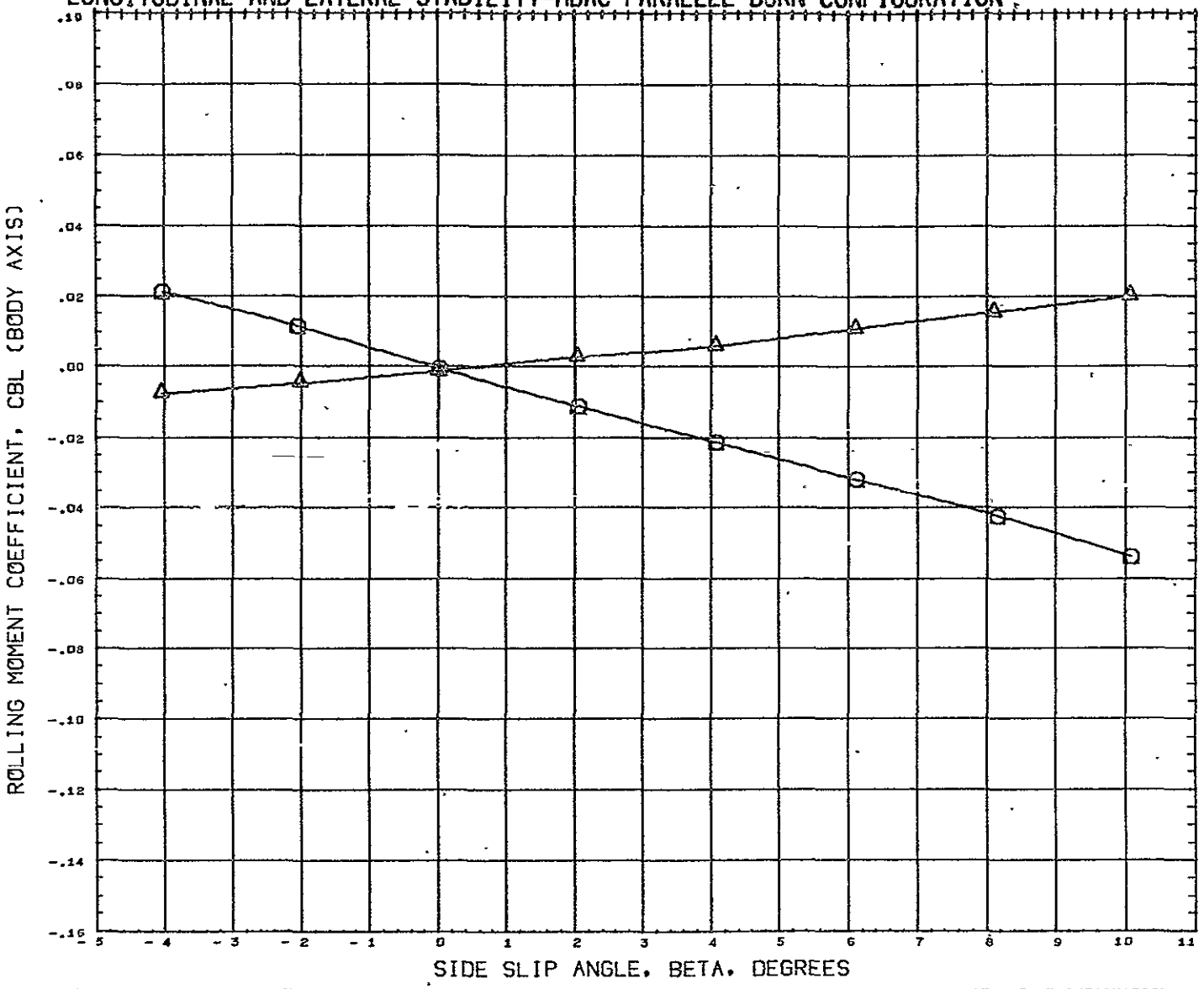


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(A43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L1
(A43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION L2
(A43002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

MACH 4.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRF	0.0000	IN.
YMRF	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



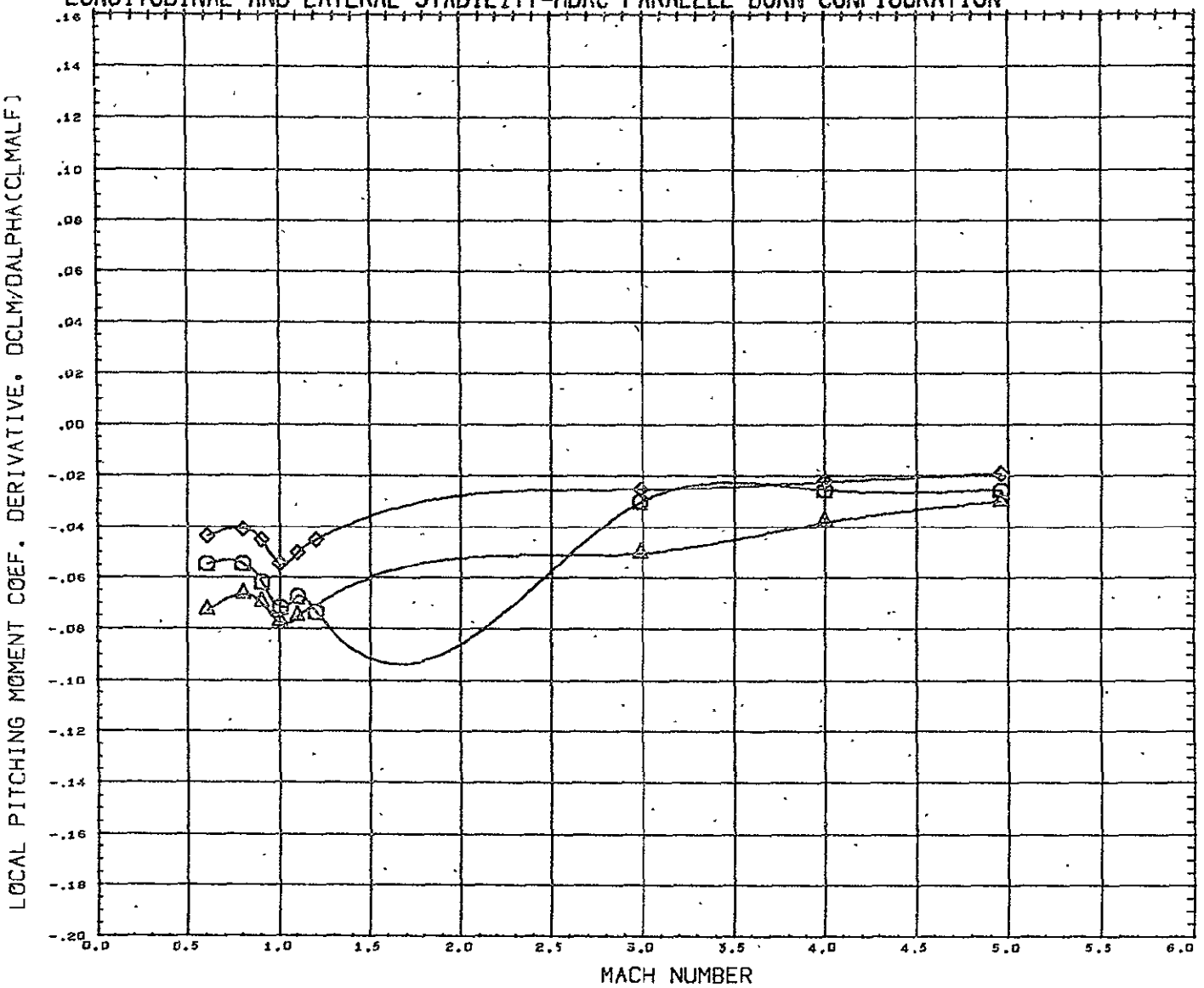
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(A43012)	○	HSFC 501 MDAC PARALLEL BURN CONFIGURATION L1
(A43022)	△	HSFC 501 MDAC PARALLEL BURN CONFIGURATION L2
(A43002)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

MACH 4.960

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



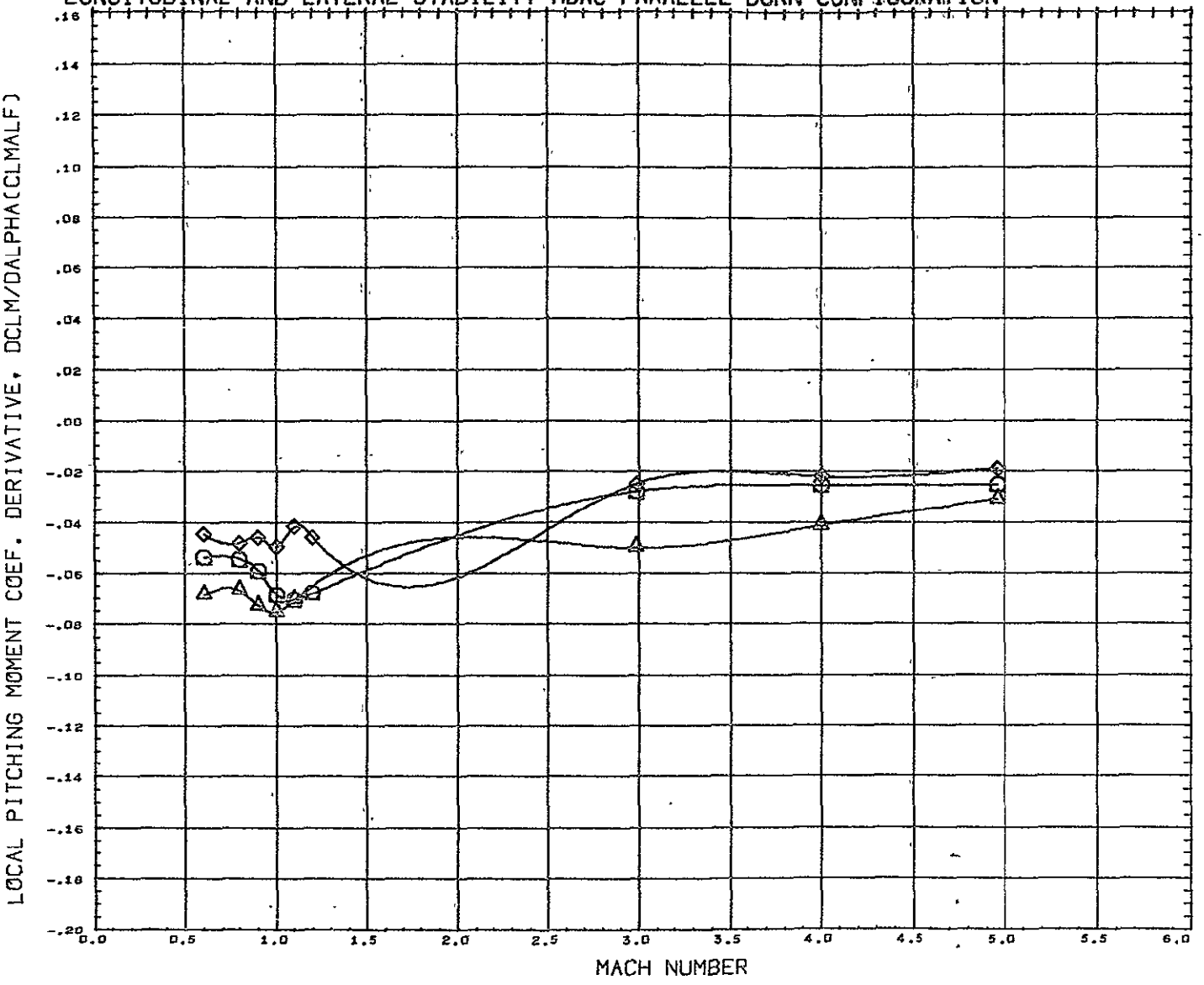
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN-BOOSTER	B

ALPHA - 10.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	.

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



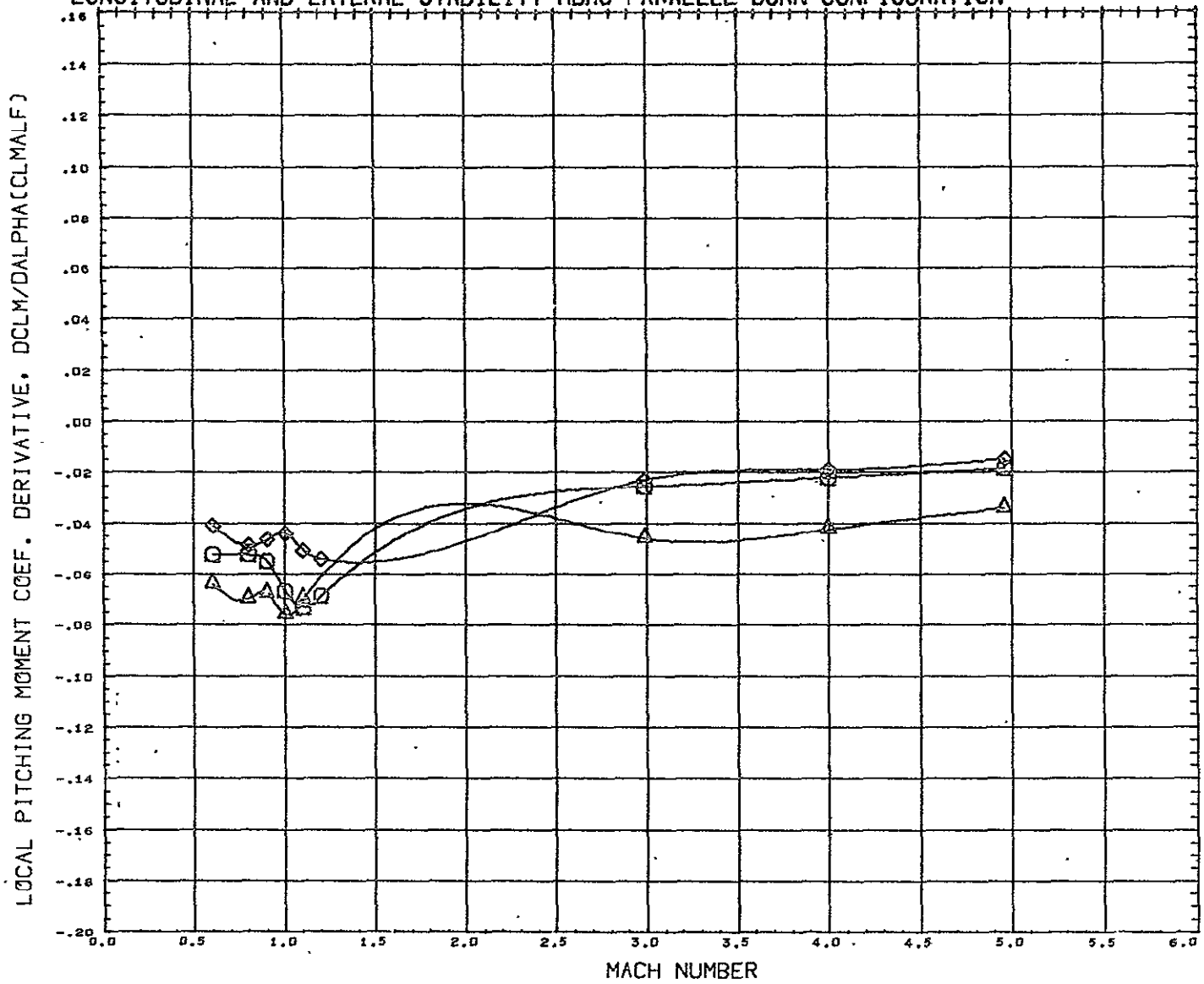
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA = 8.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



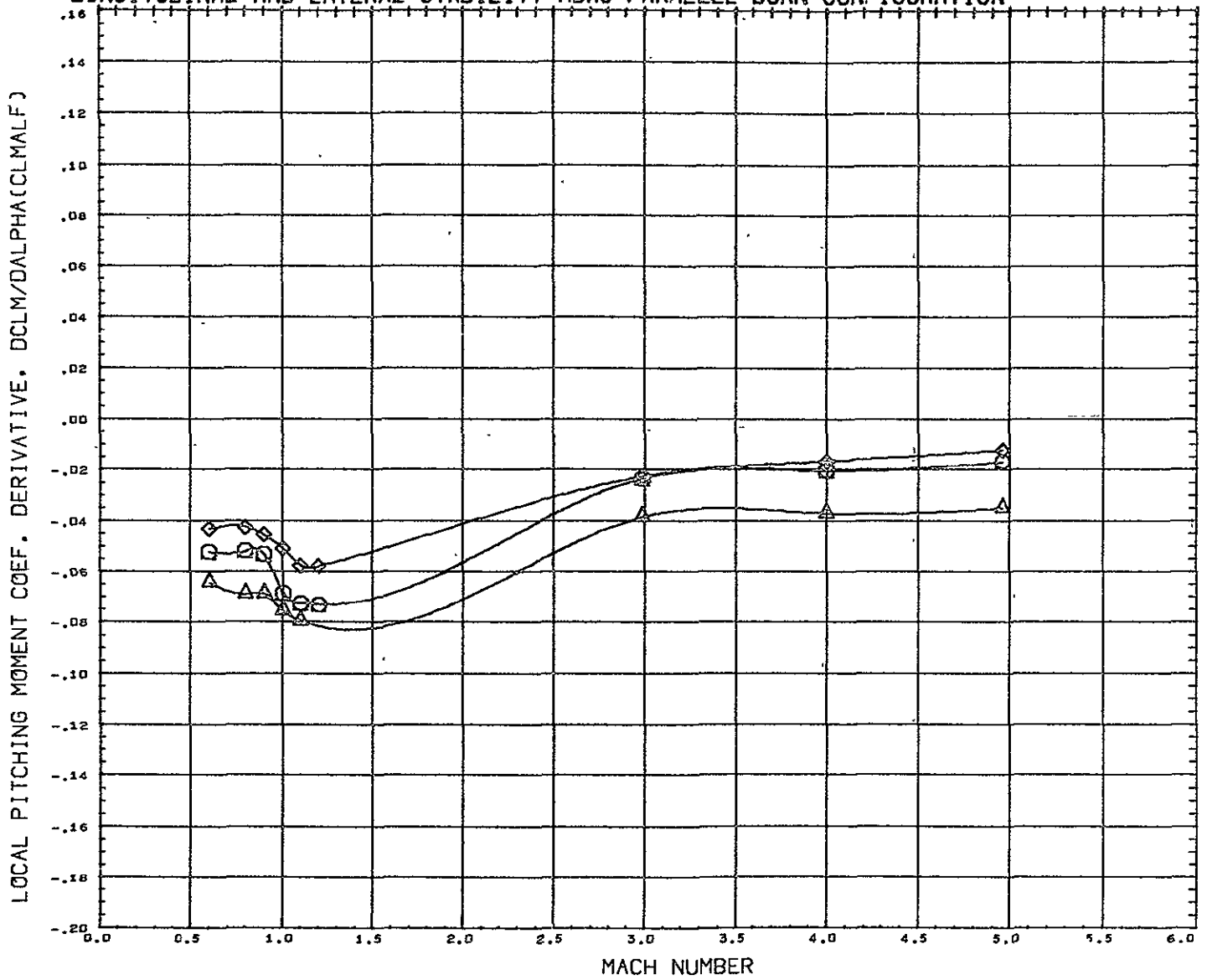
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 6.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

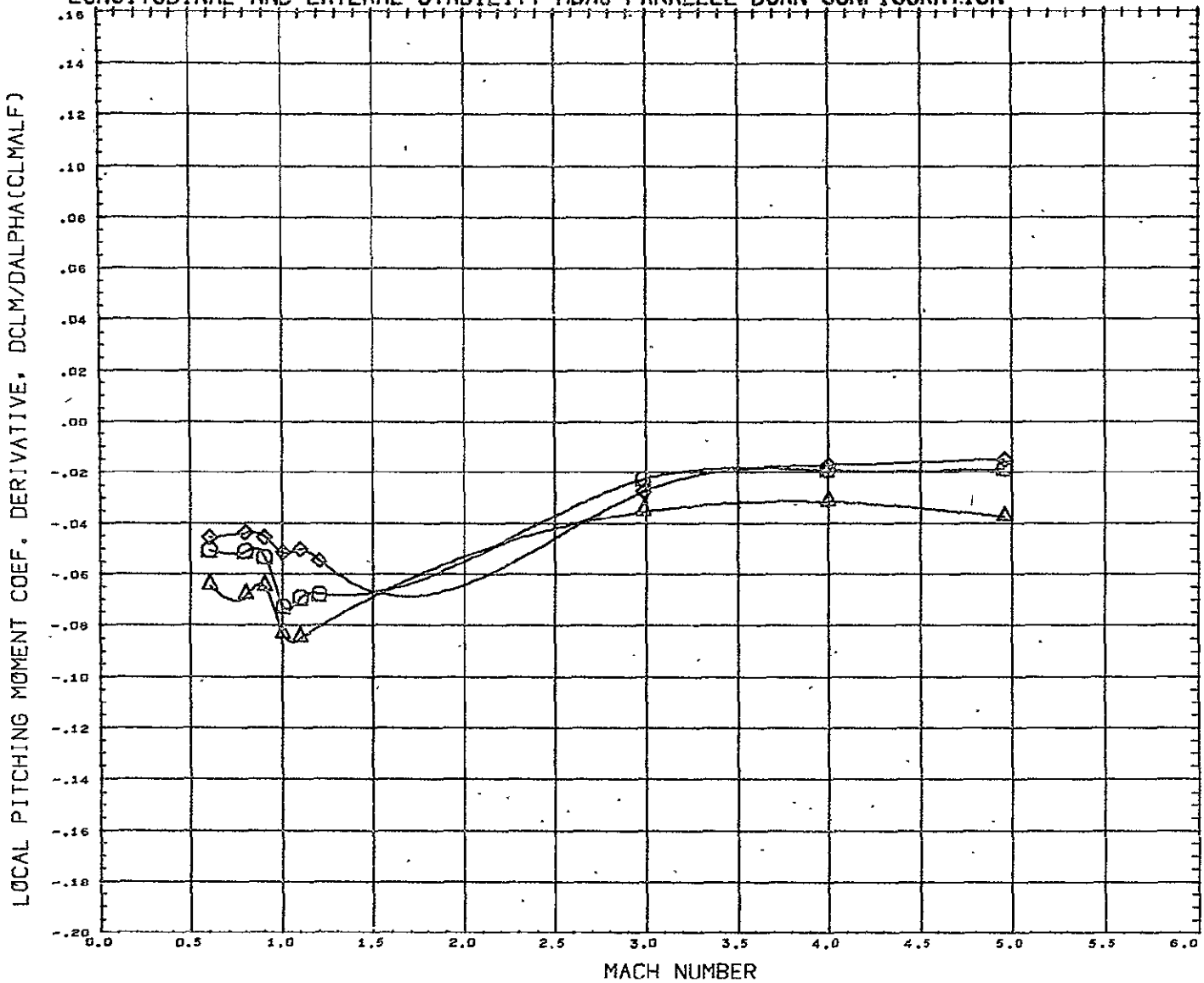


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 4.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



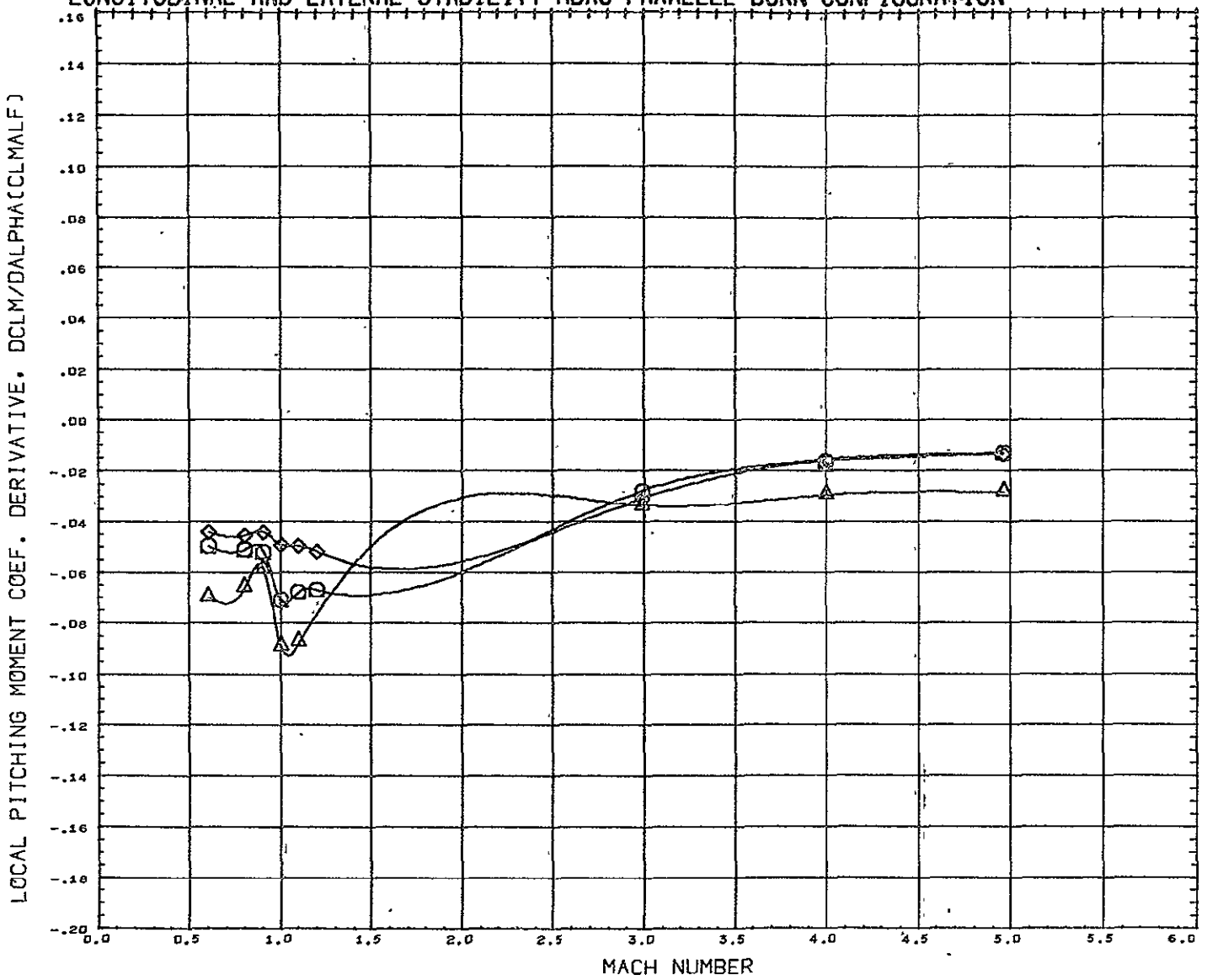
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 2.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

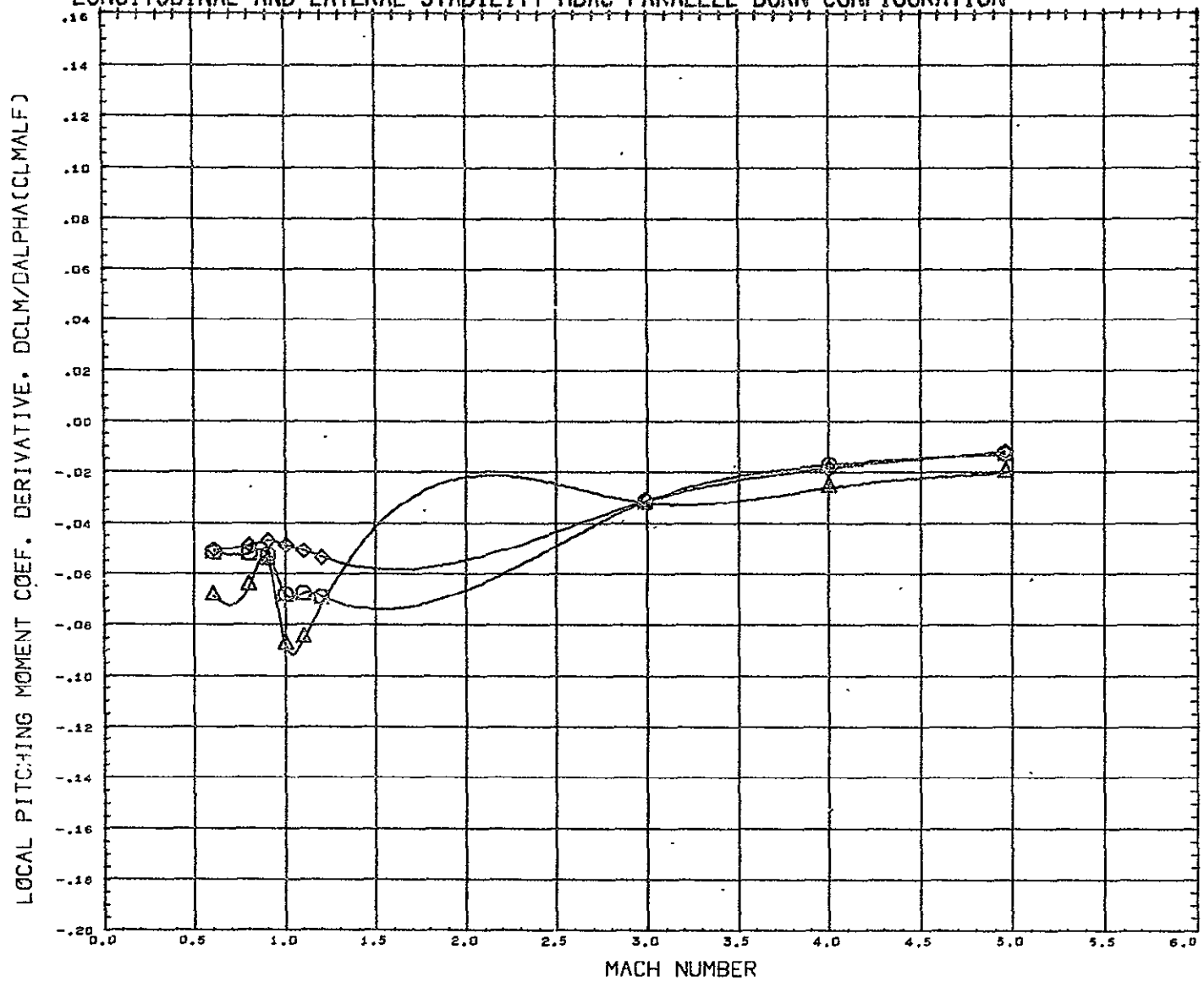


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 5G1 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 5G1 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 5G1 MDAC PARALLEL BURN BOOSTER	B

ALPHA = 1.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



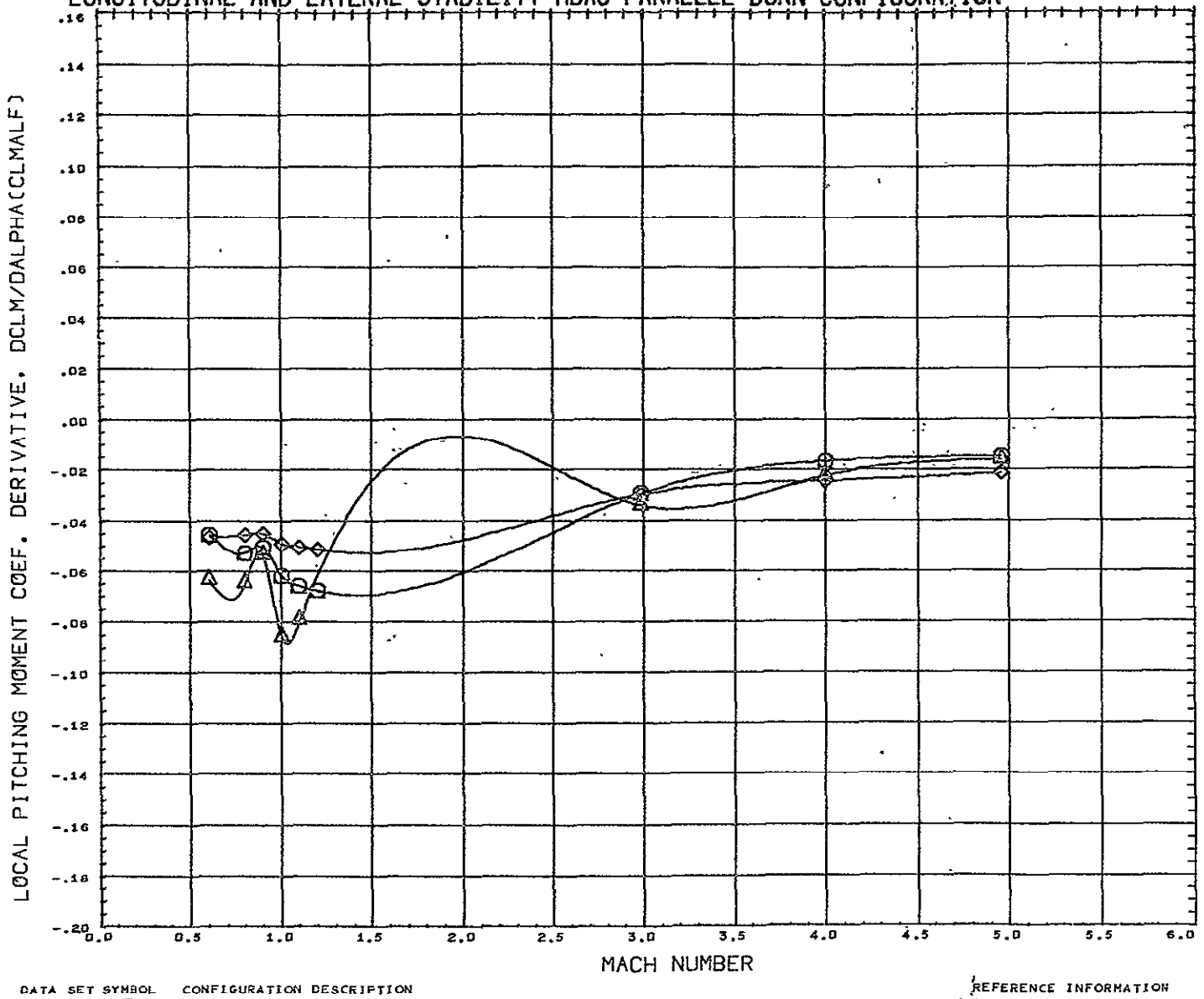
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 0.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BPEF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



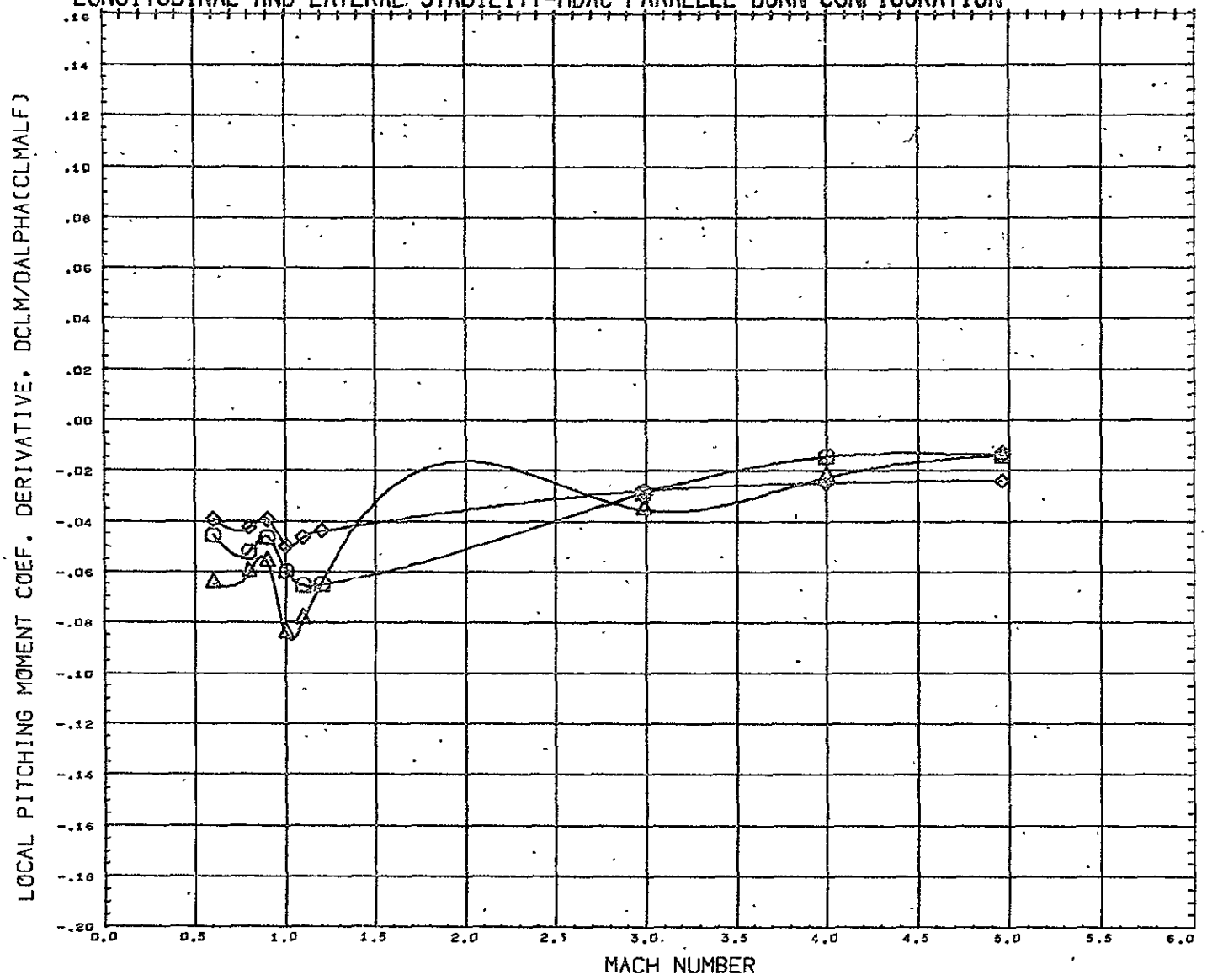
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 1.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

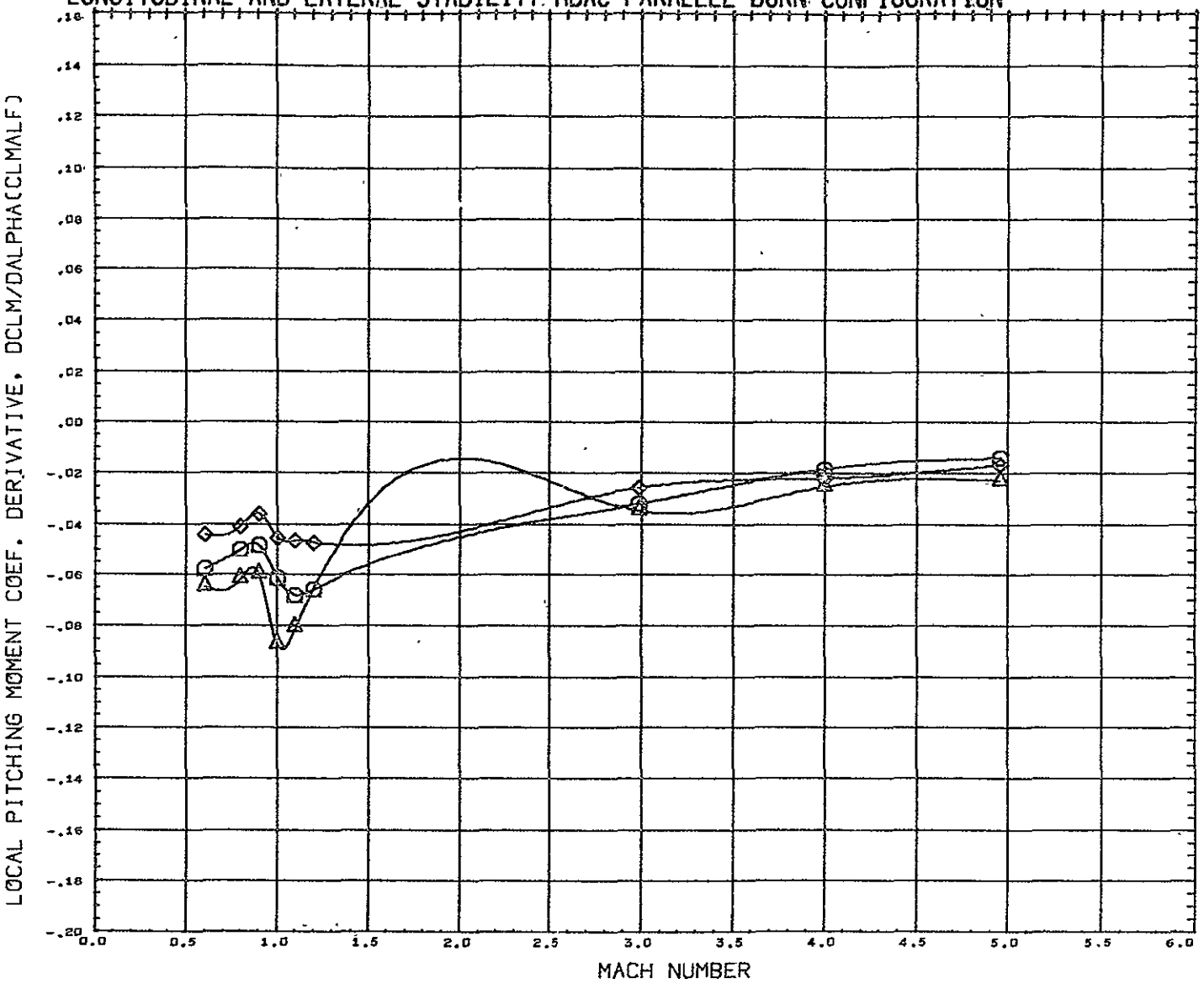


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 2.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



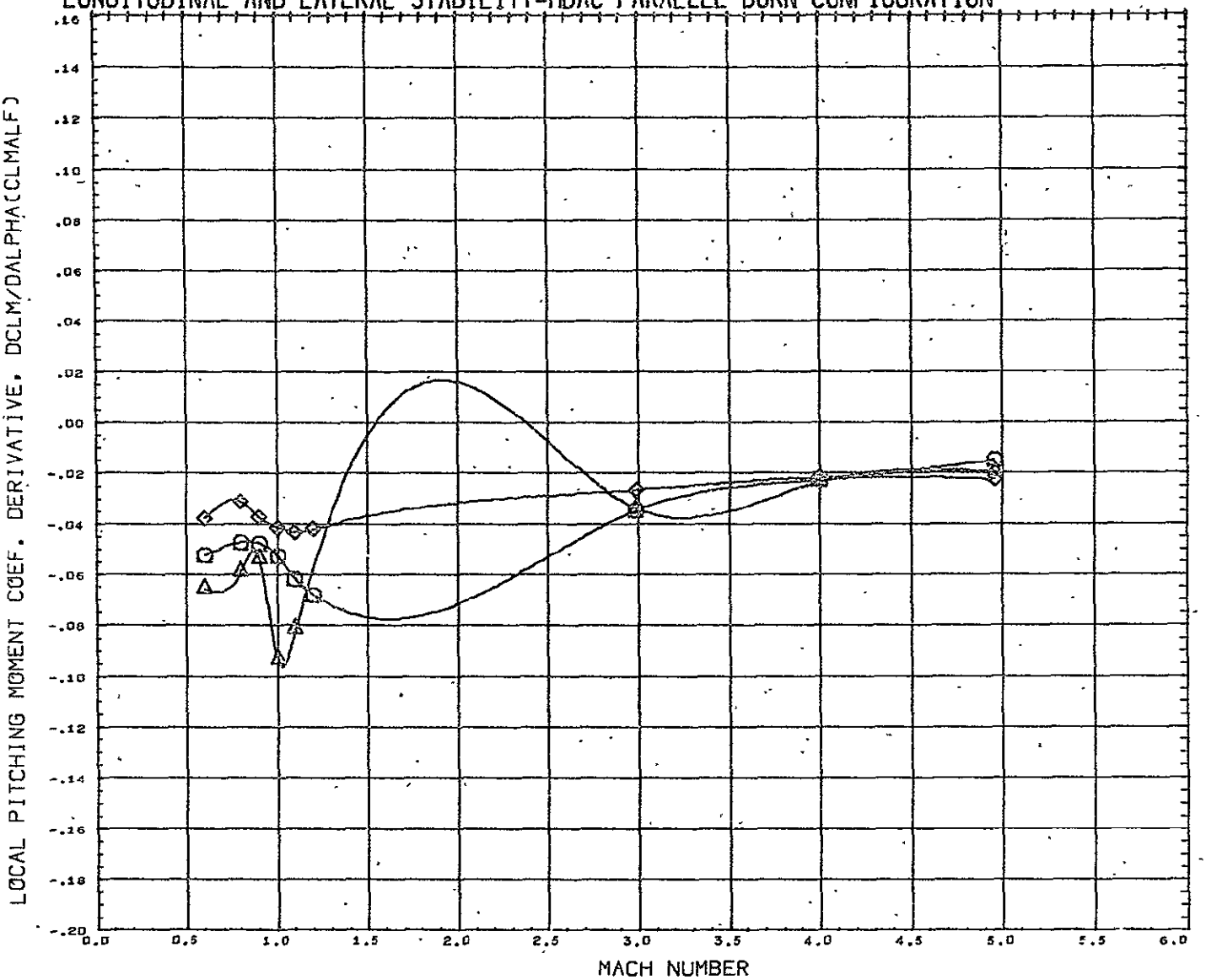
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



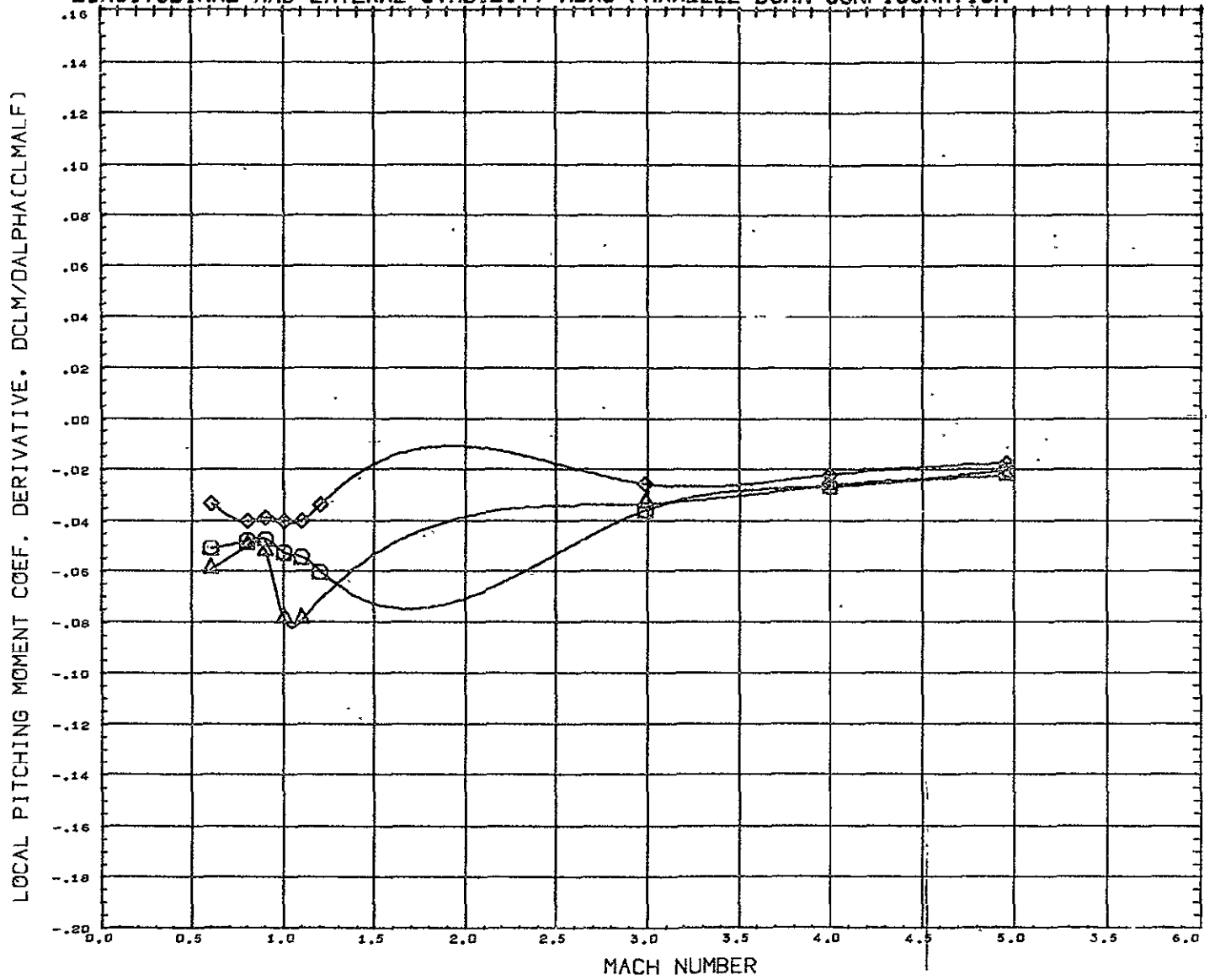
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 6.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



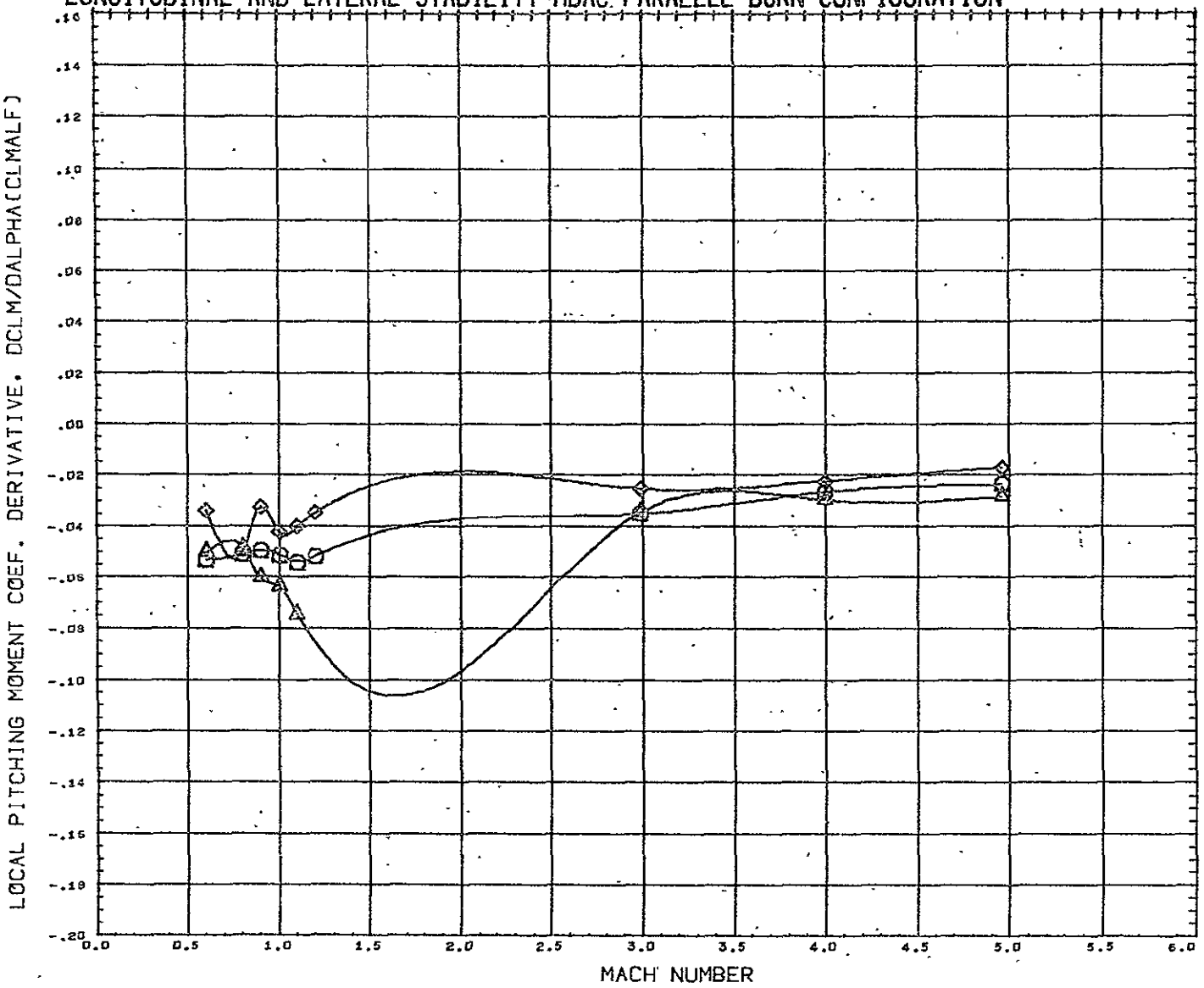
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 8.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



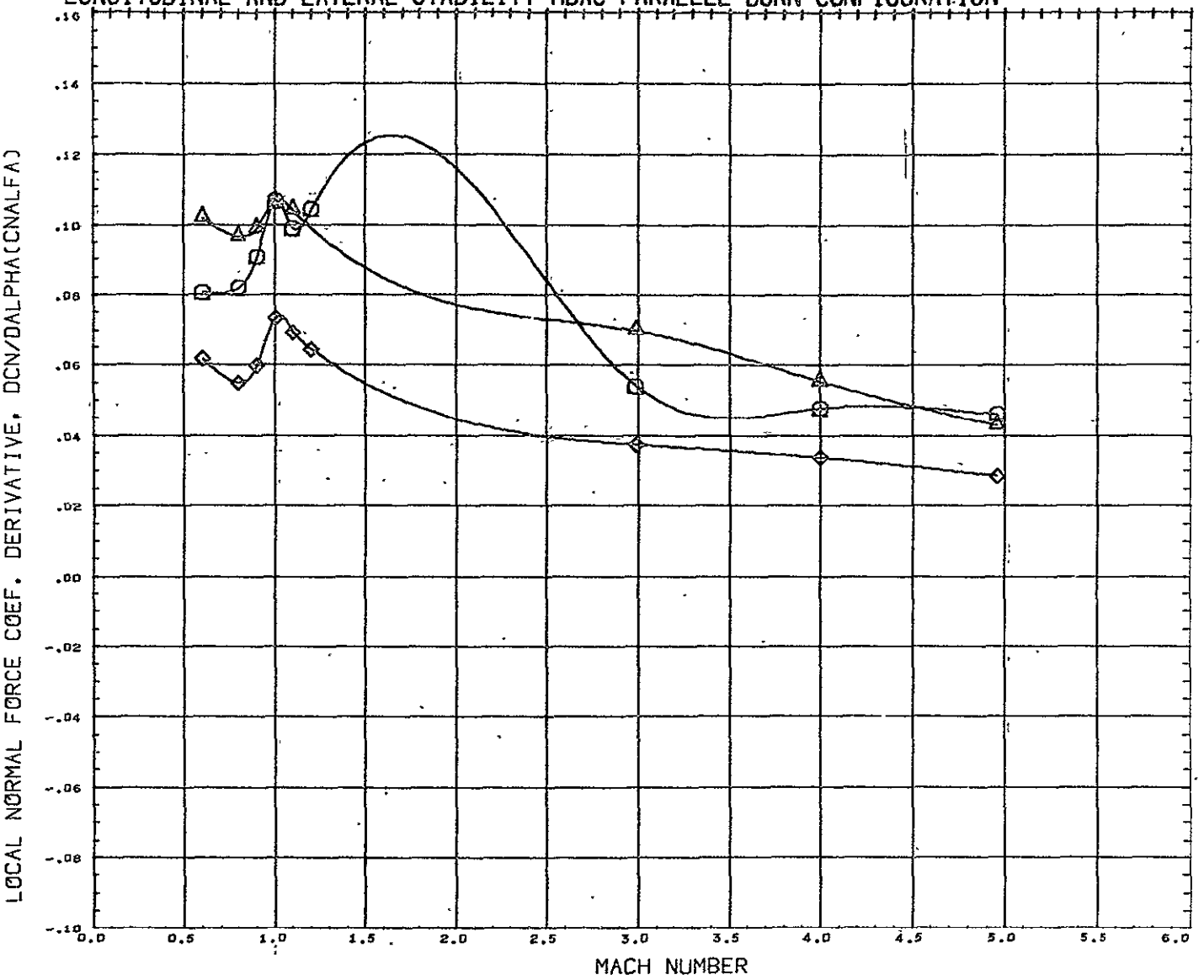
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 10.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

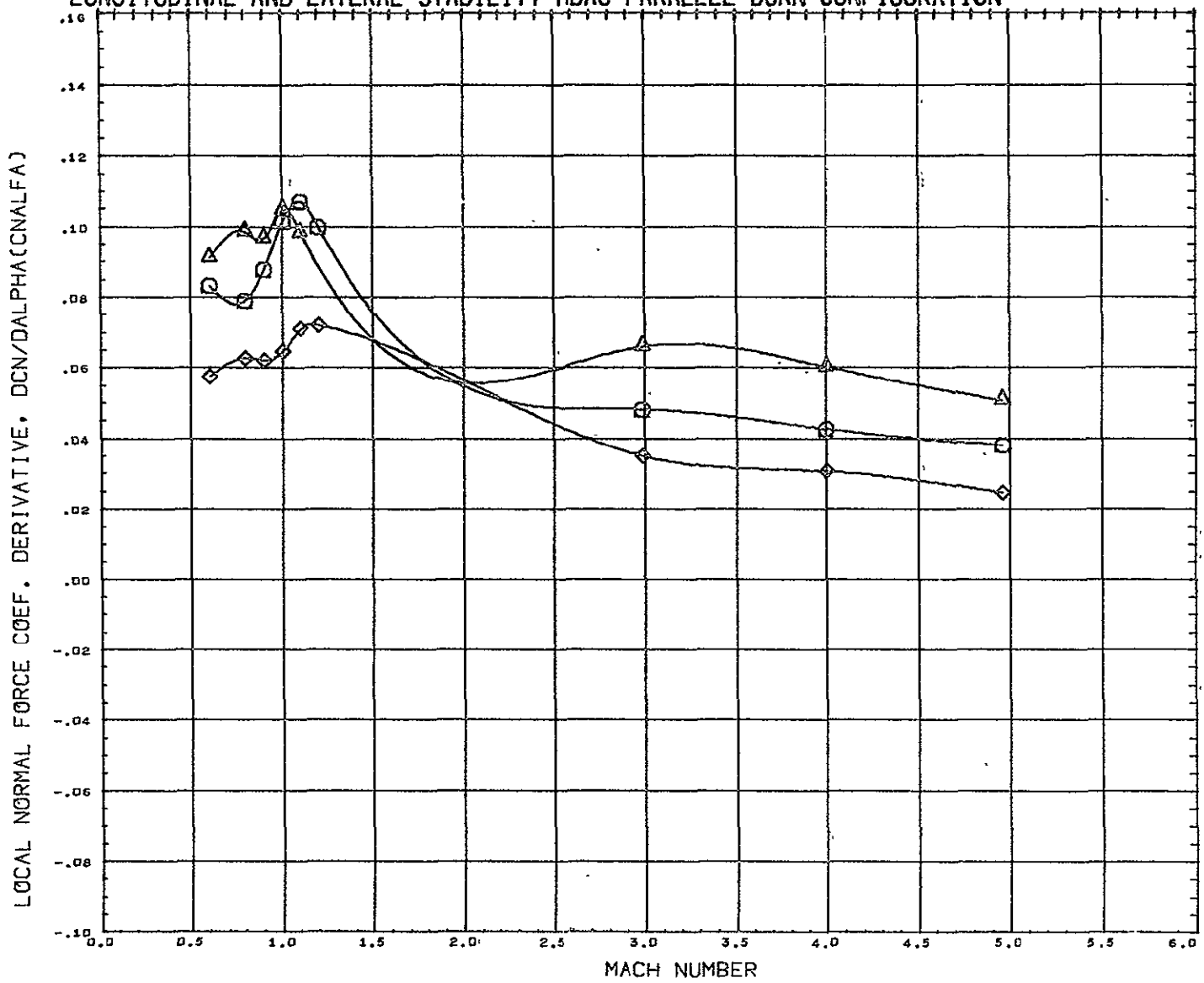


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 10.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

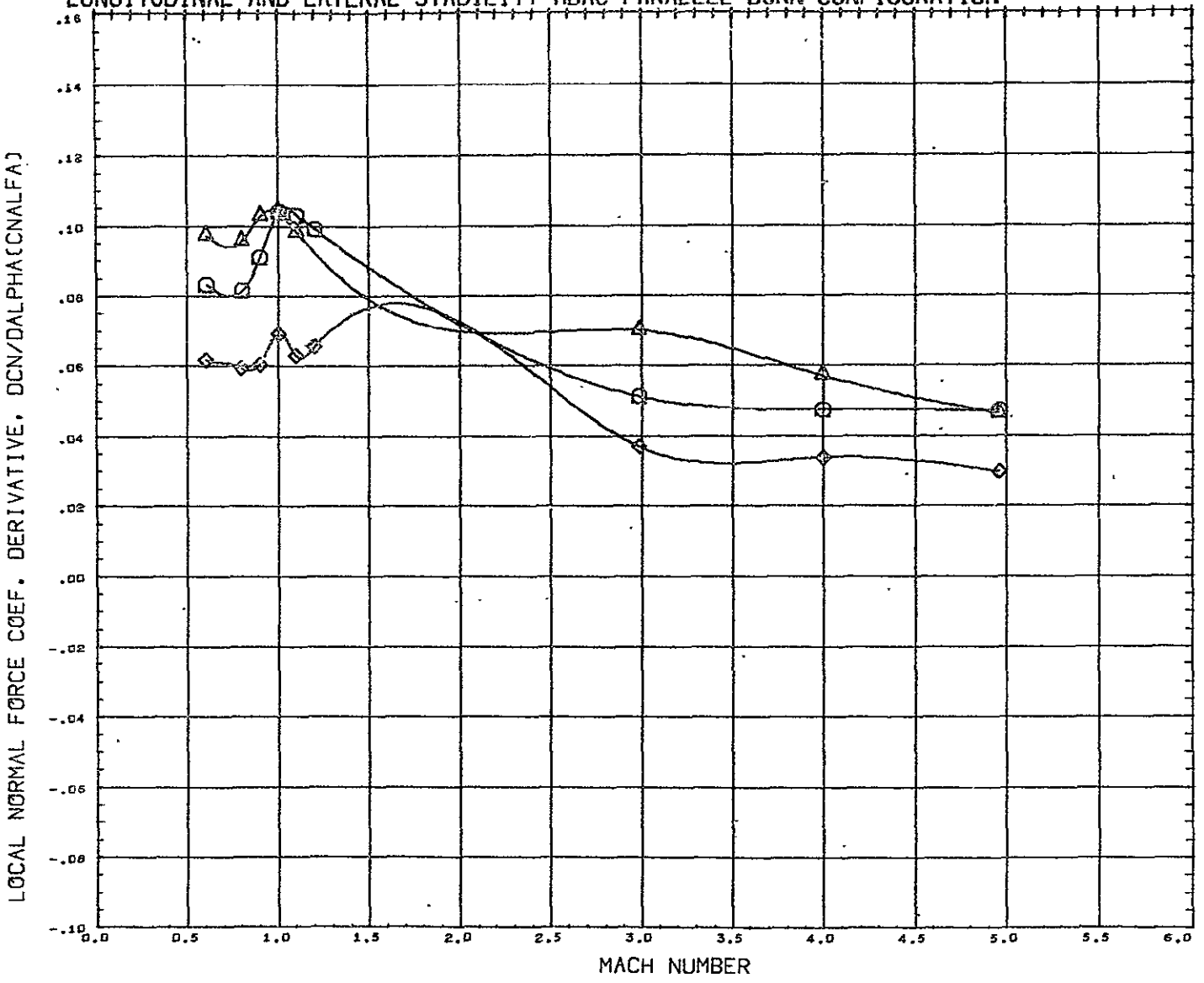


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 6.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

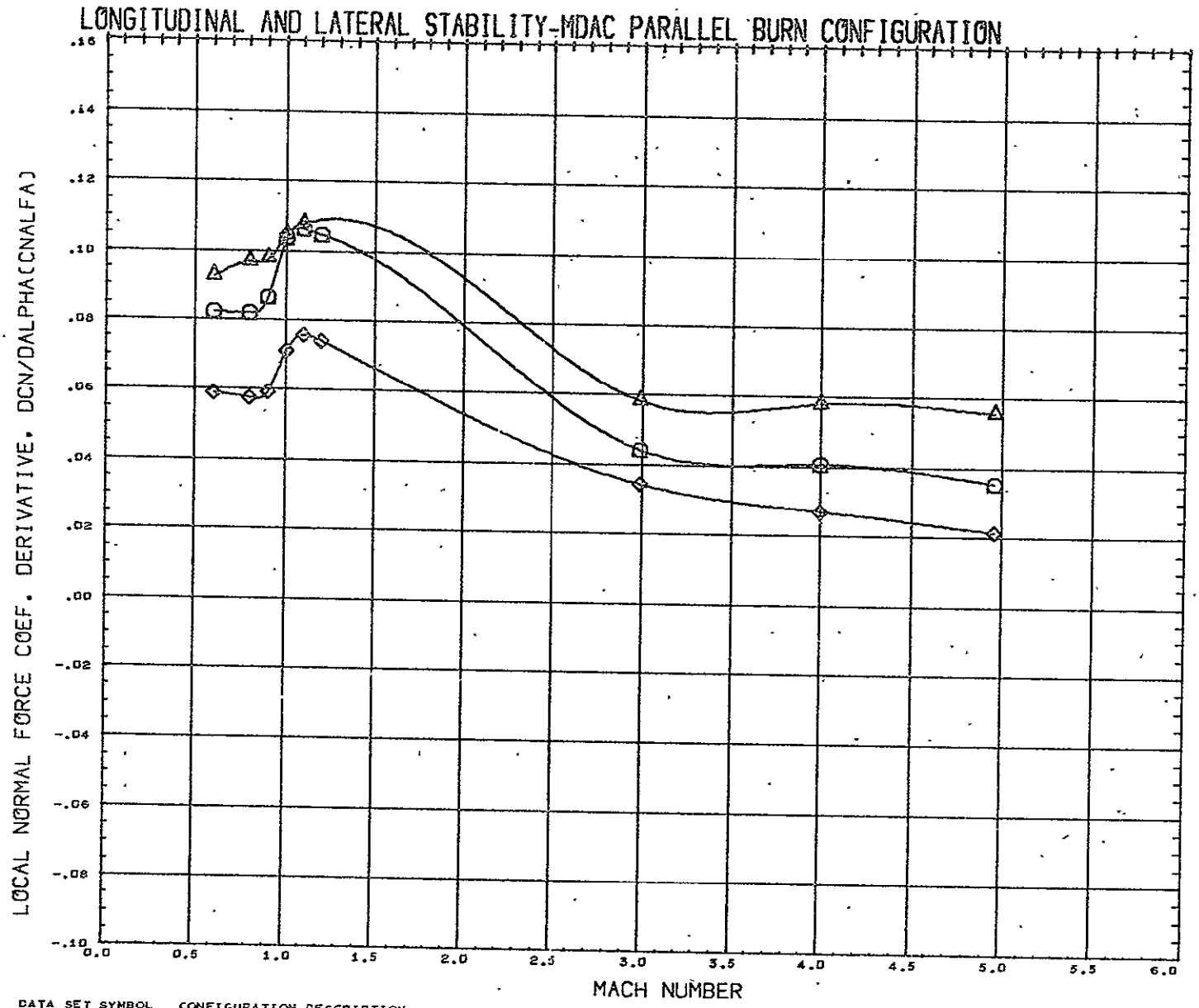


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA = 8.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	



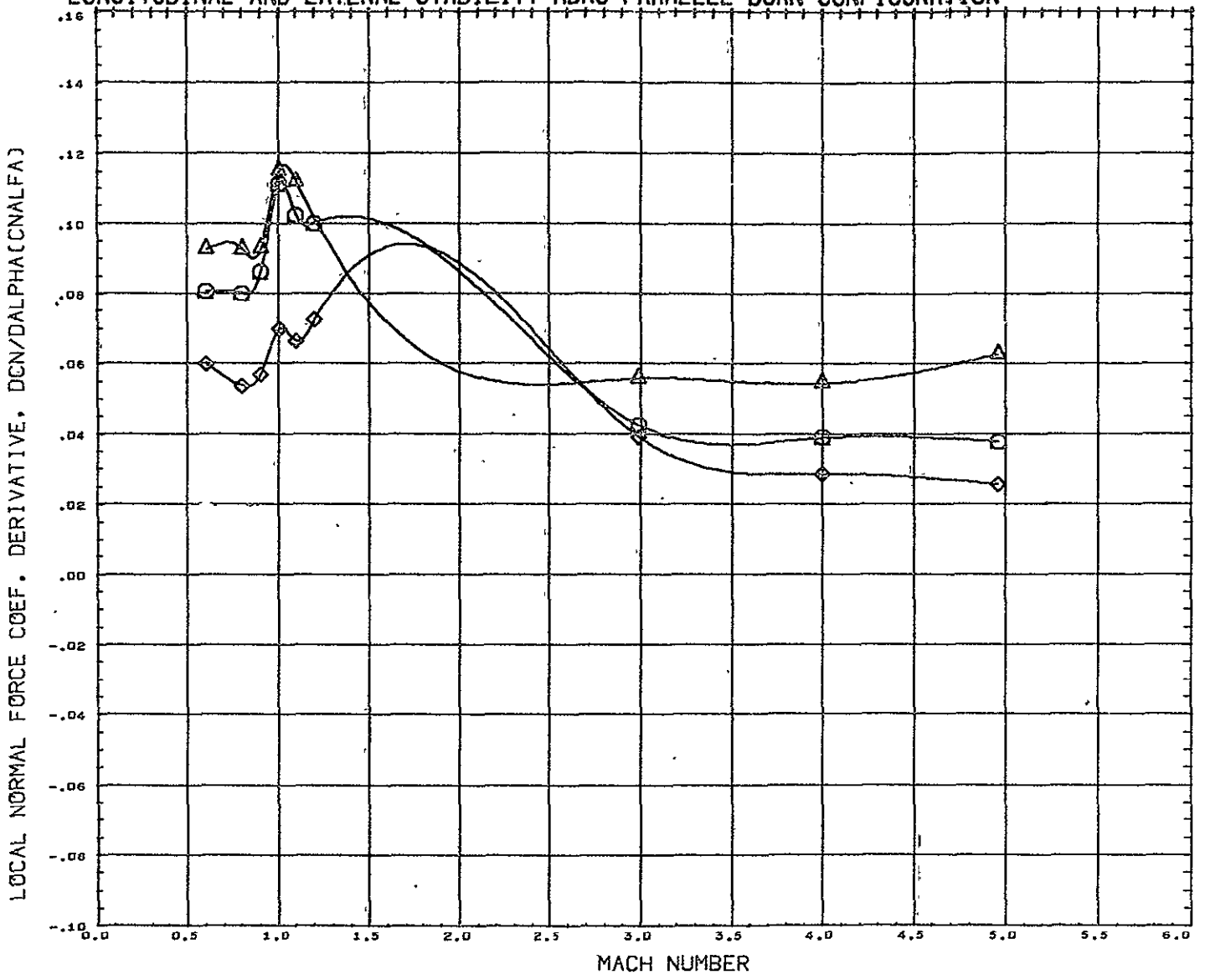
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



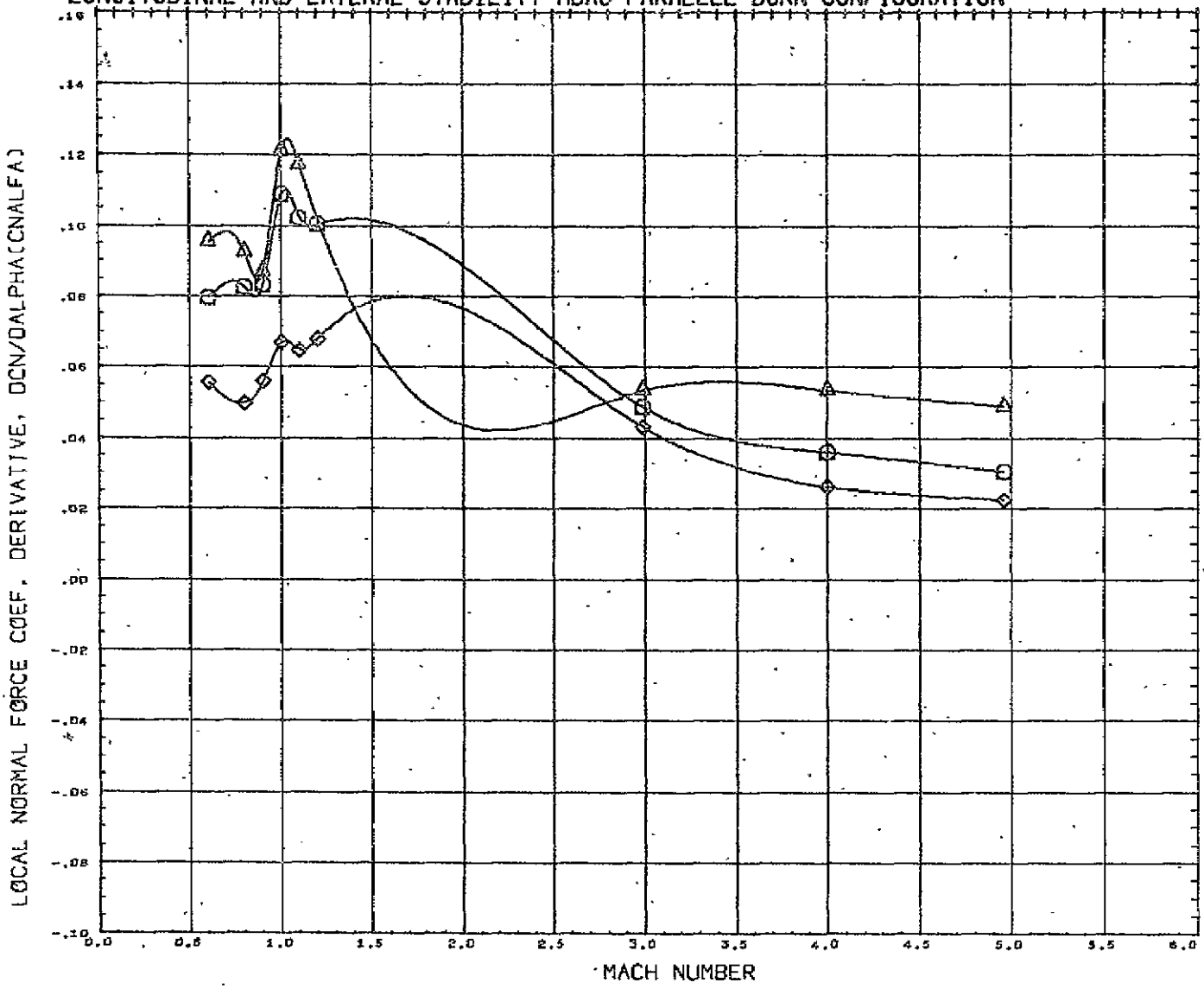
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA - 2.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

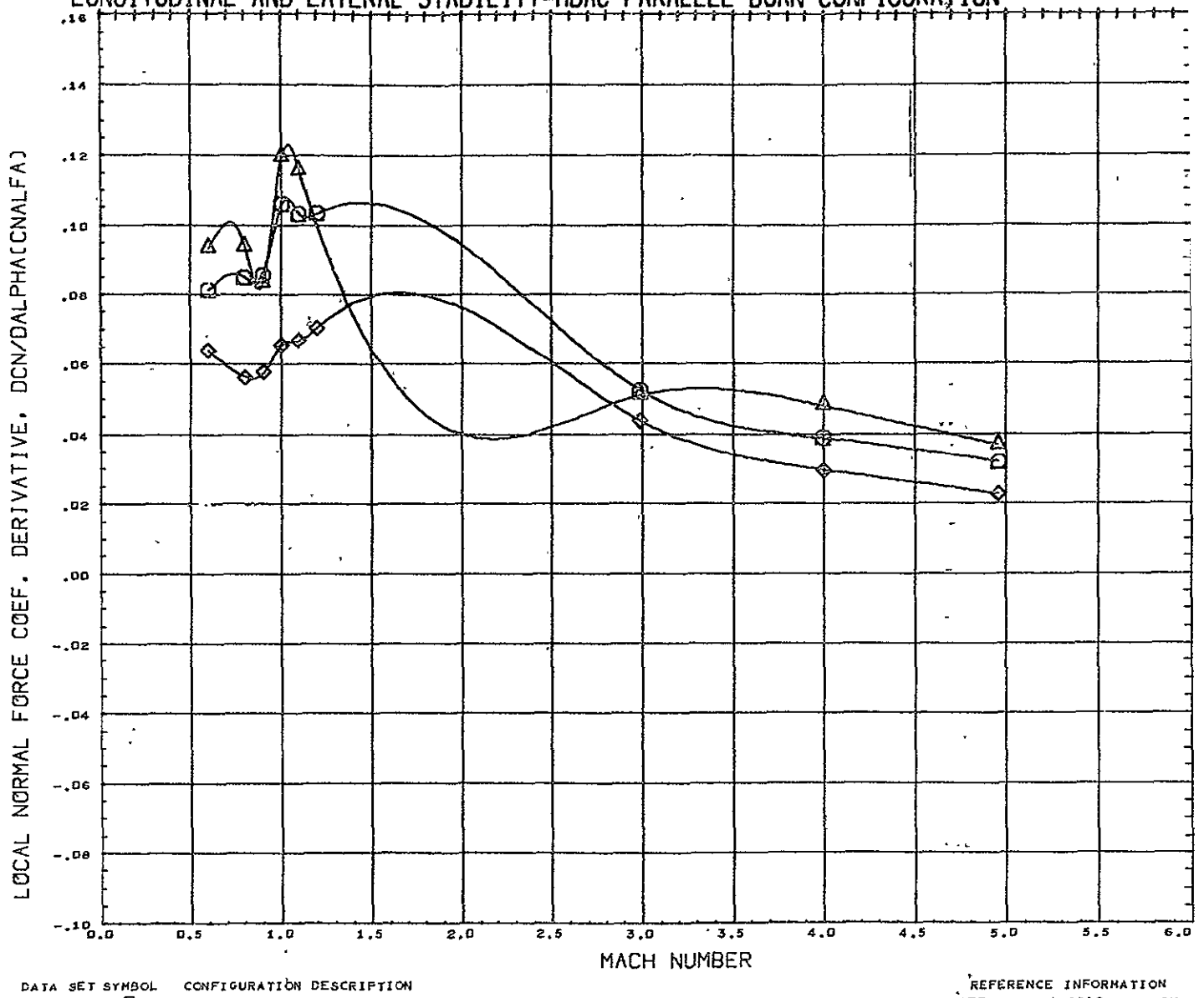


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA = 1.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRF	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



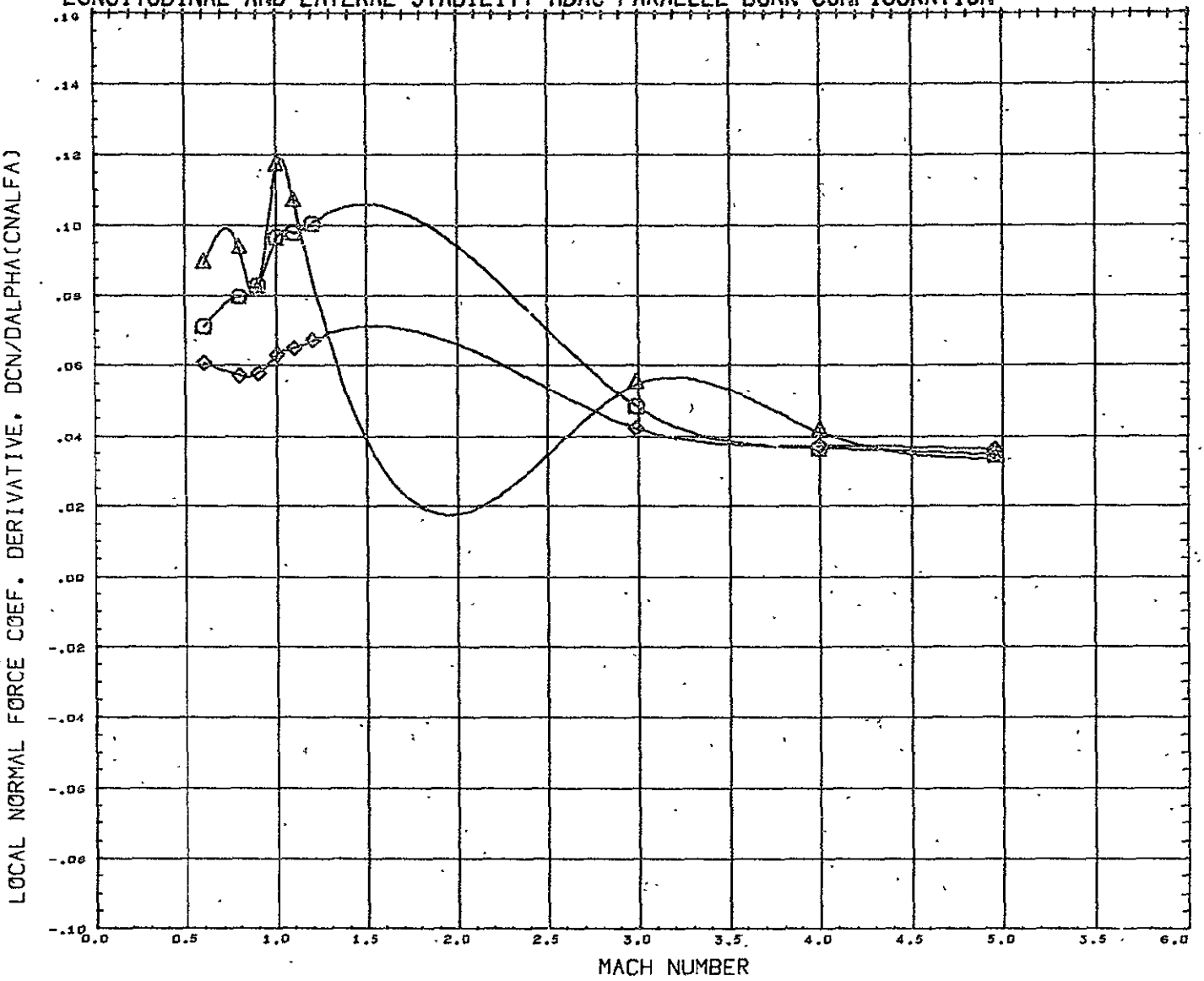
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 0.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



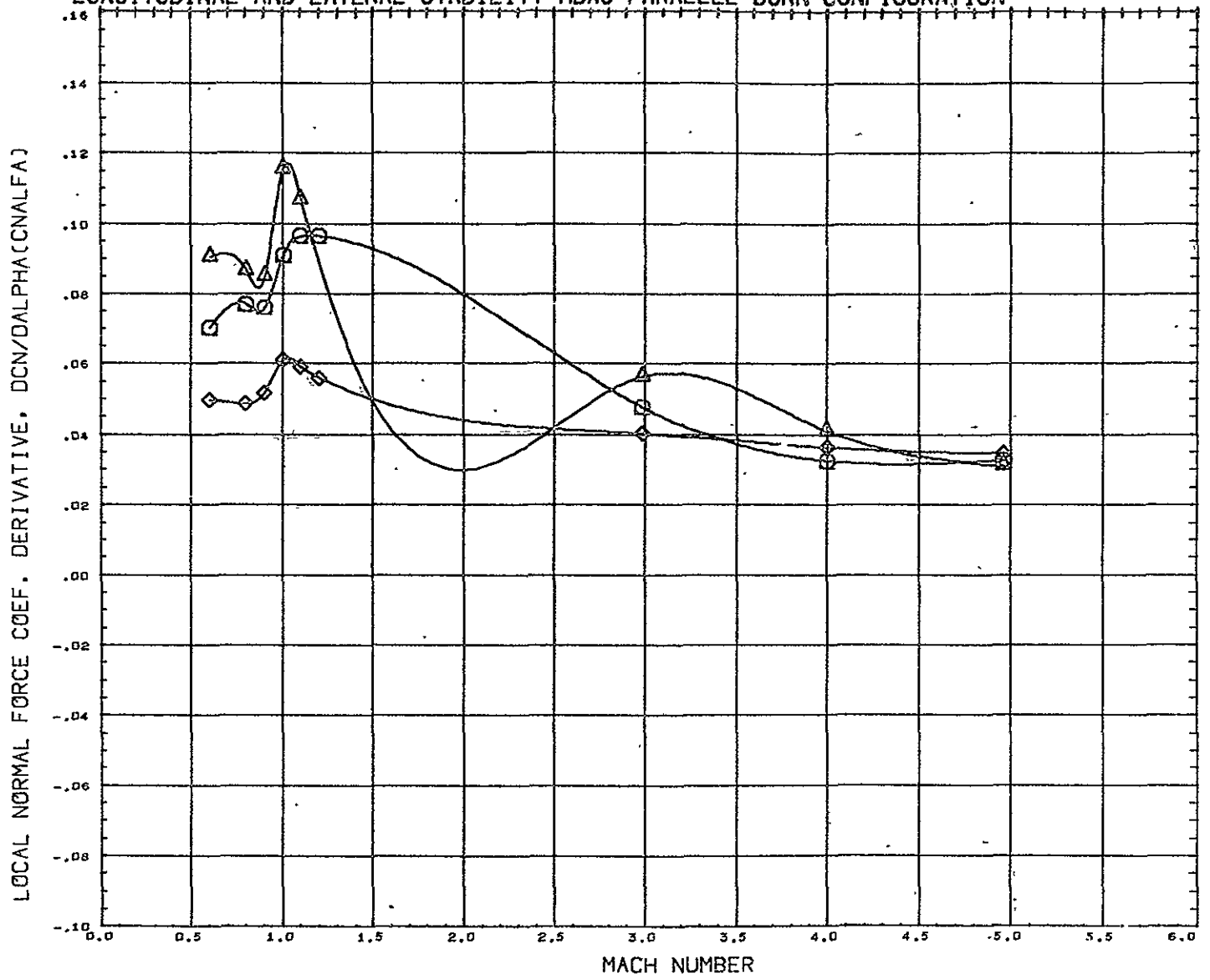
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 1.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

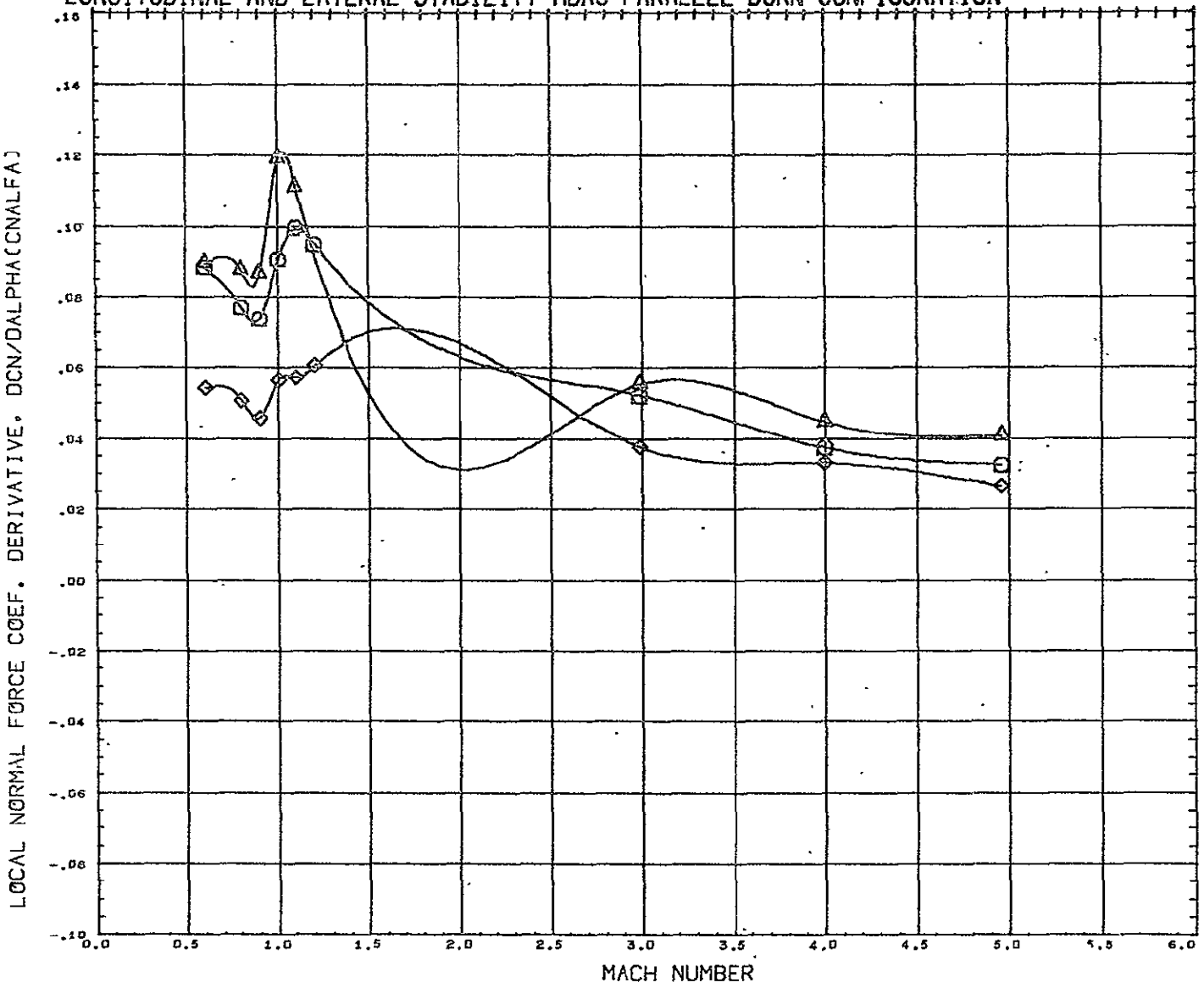


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 2.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

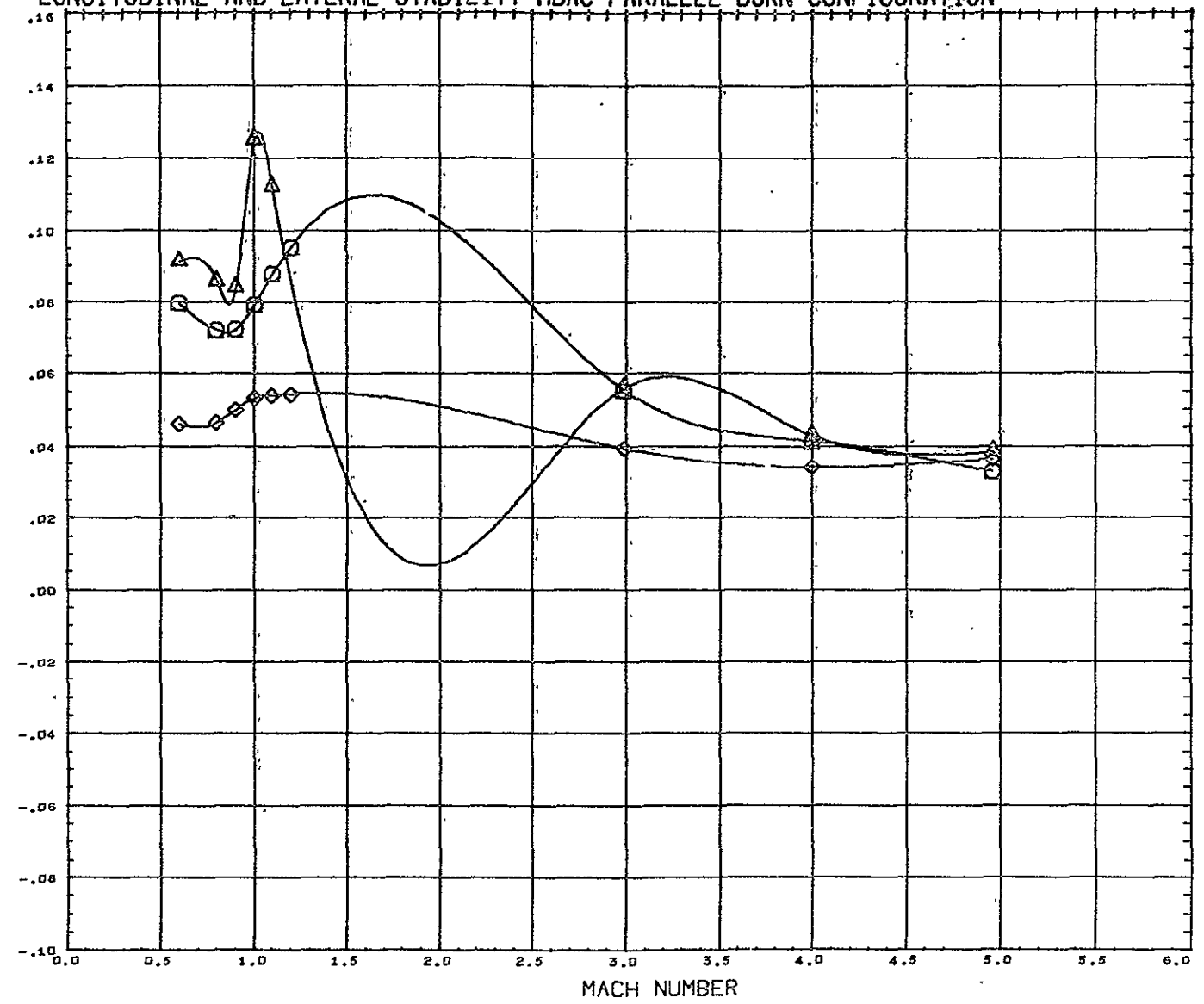


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 4.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



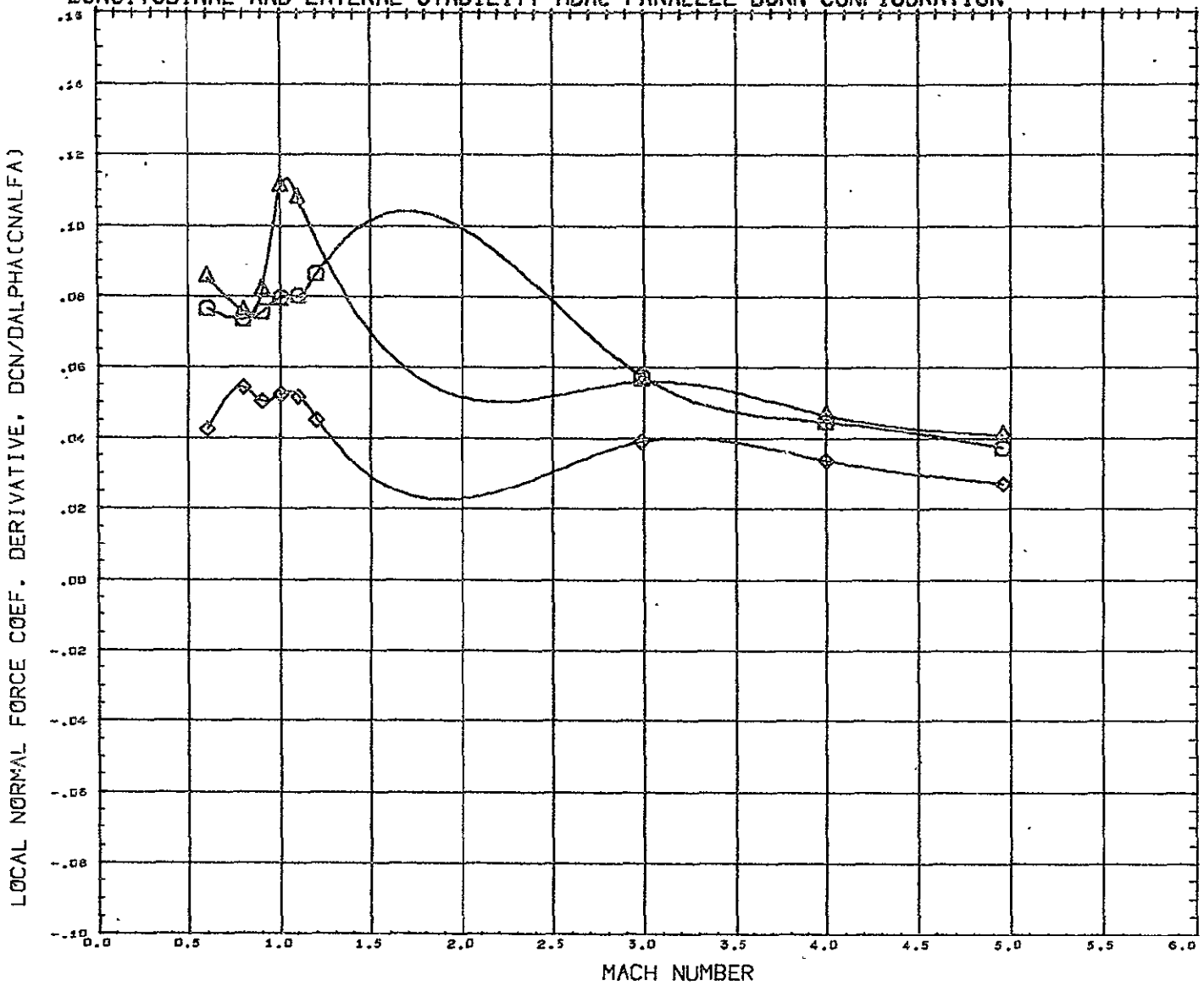
DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 6.0

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



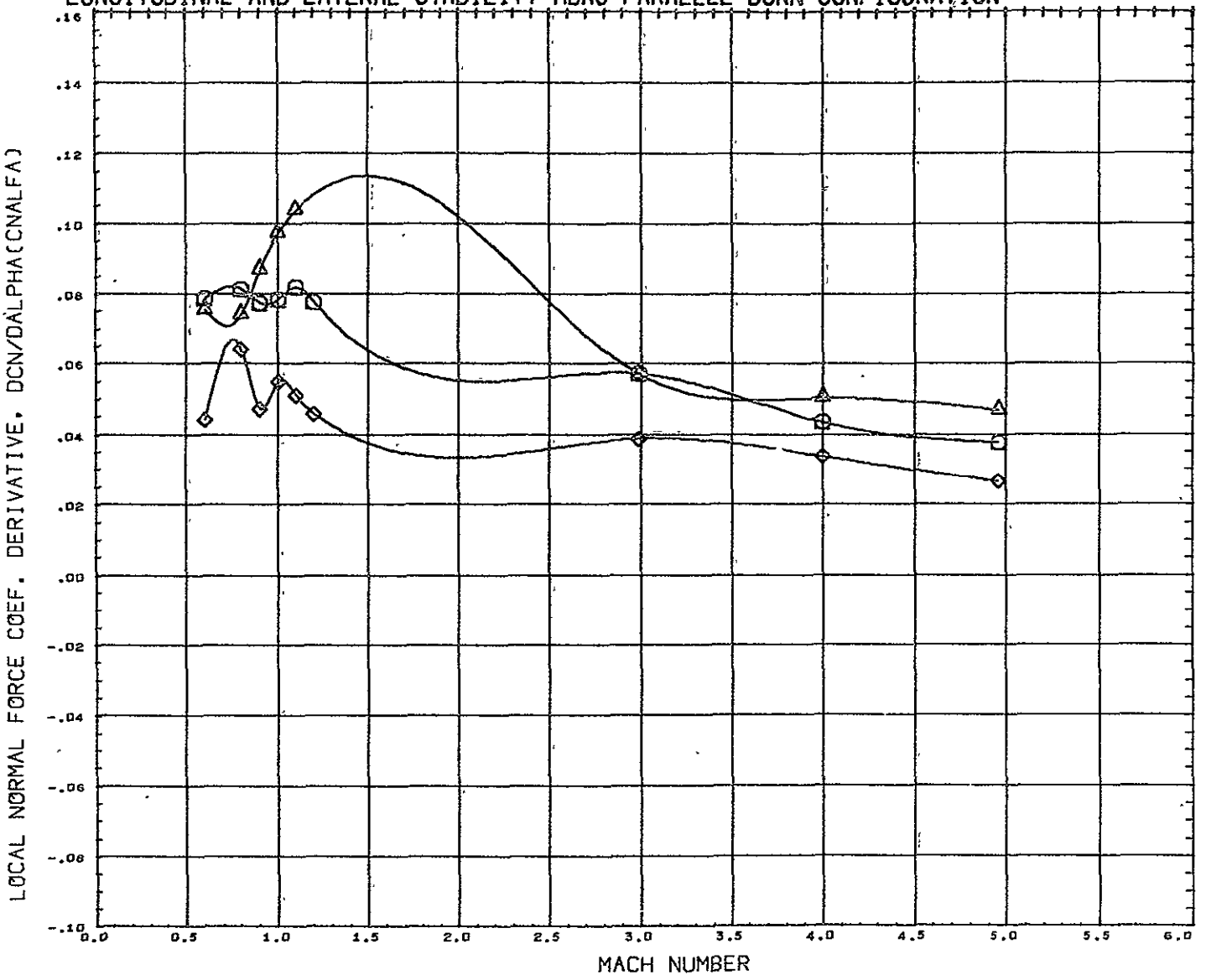
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(K43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 8.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

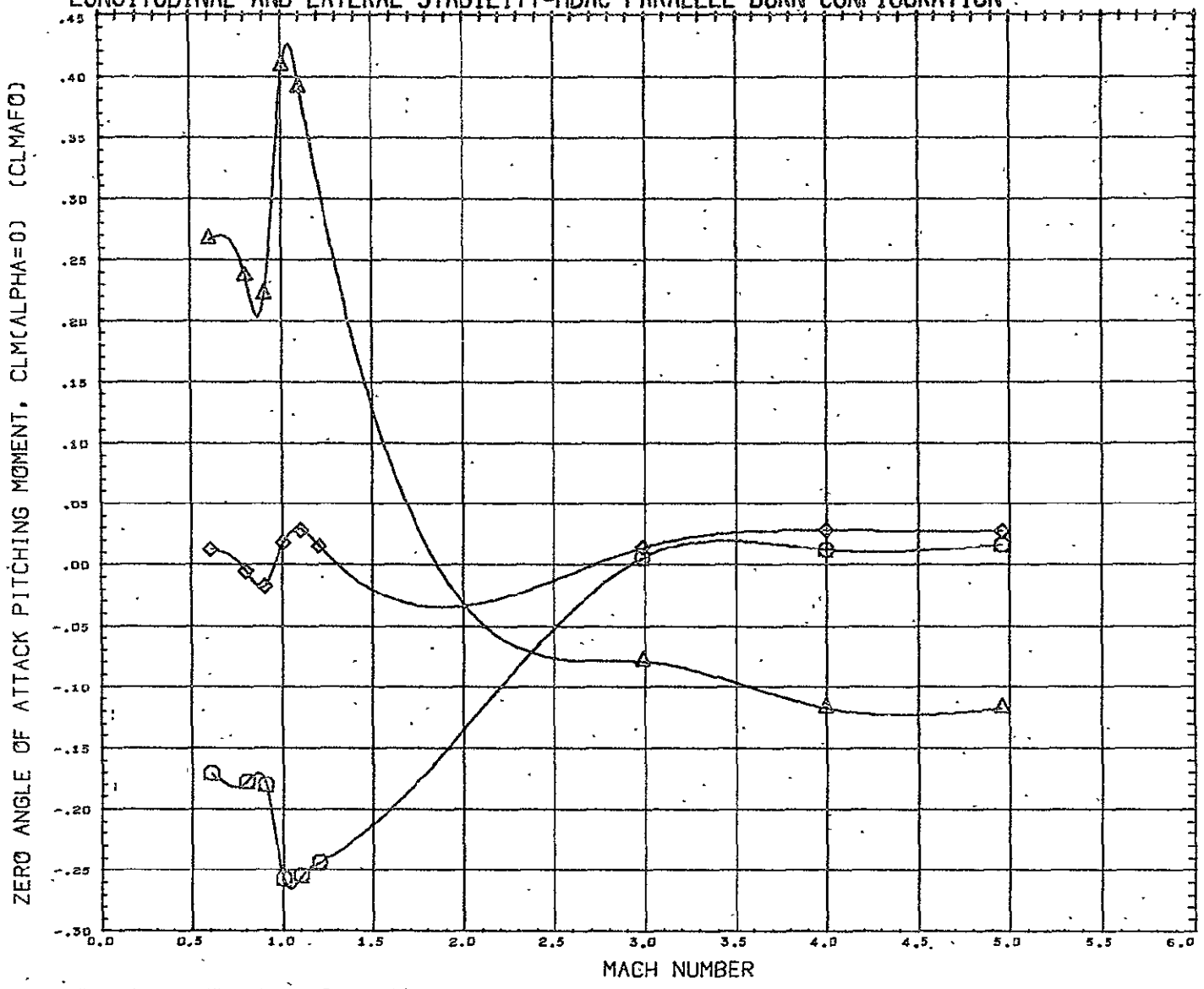


DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(K43011)	○	HSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(K43021)	△	HSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(K43001)	◇	HSFC 501 MDAC PARALLEL BURN BOOSTER	B

ALPHA 10.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

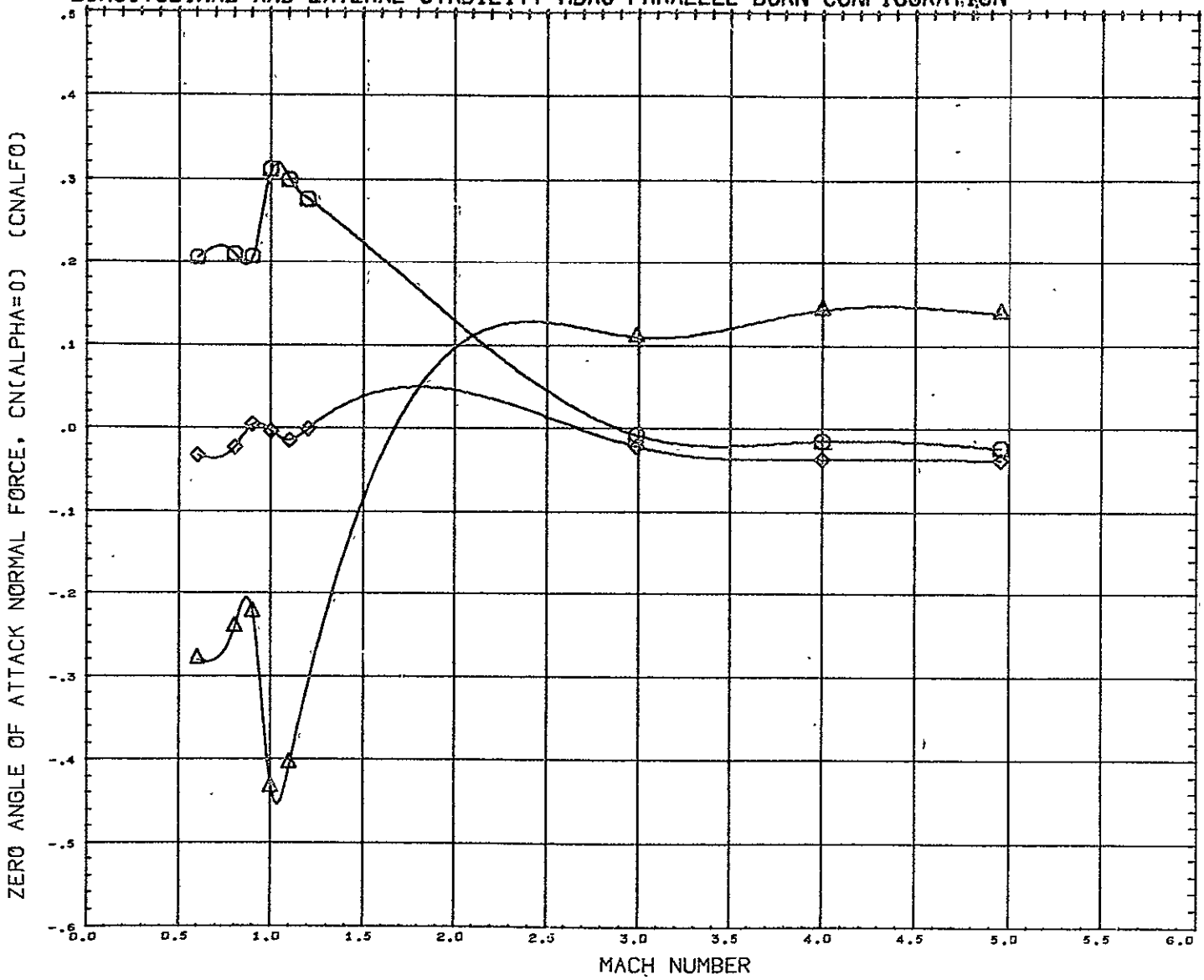
LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(L43011)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(L43021)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(L43001)		MSFC 501 MDAC PARALLEL BURN BOOSTER	B

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

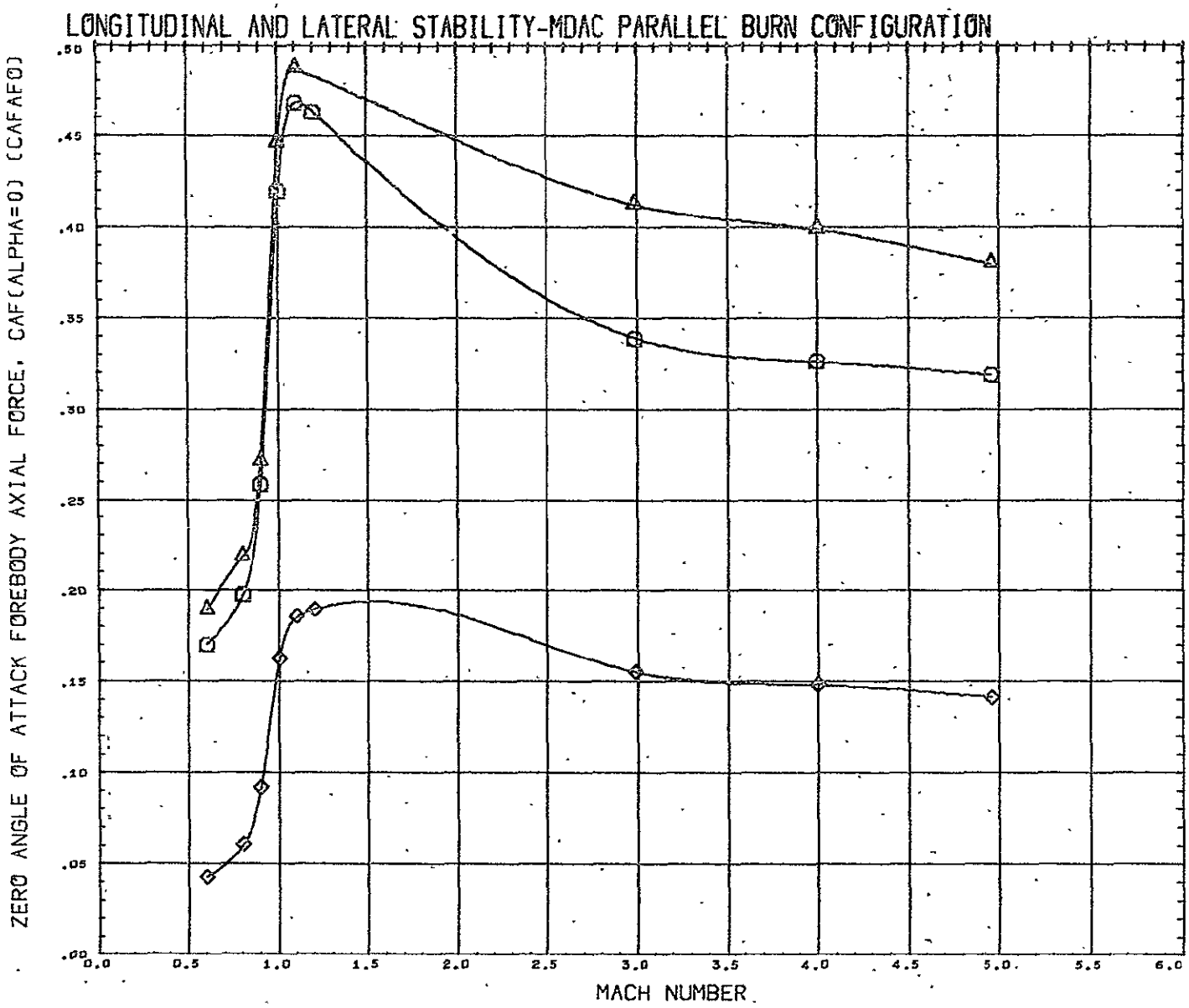
LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(L43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(L43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(L43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0020	

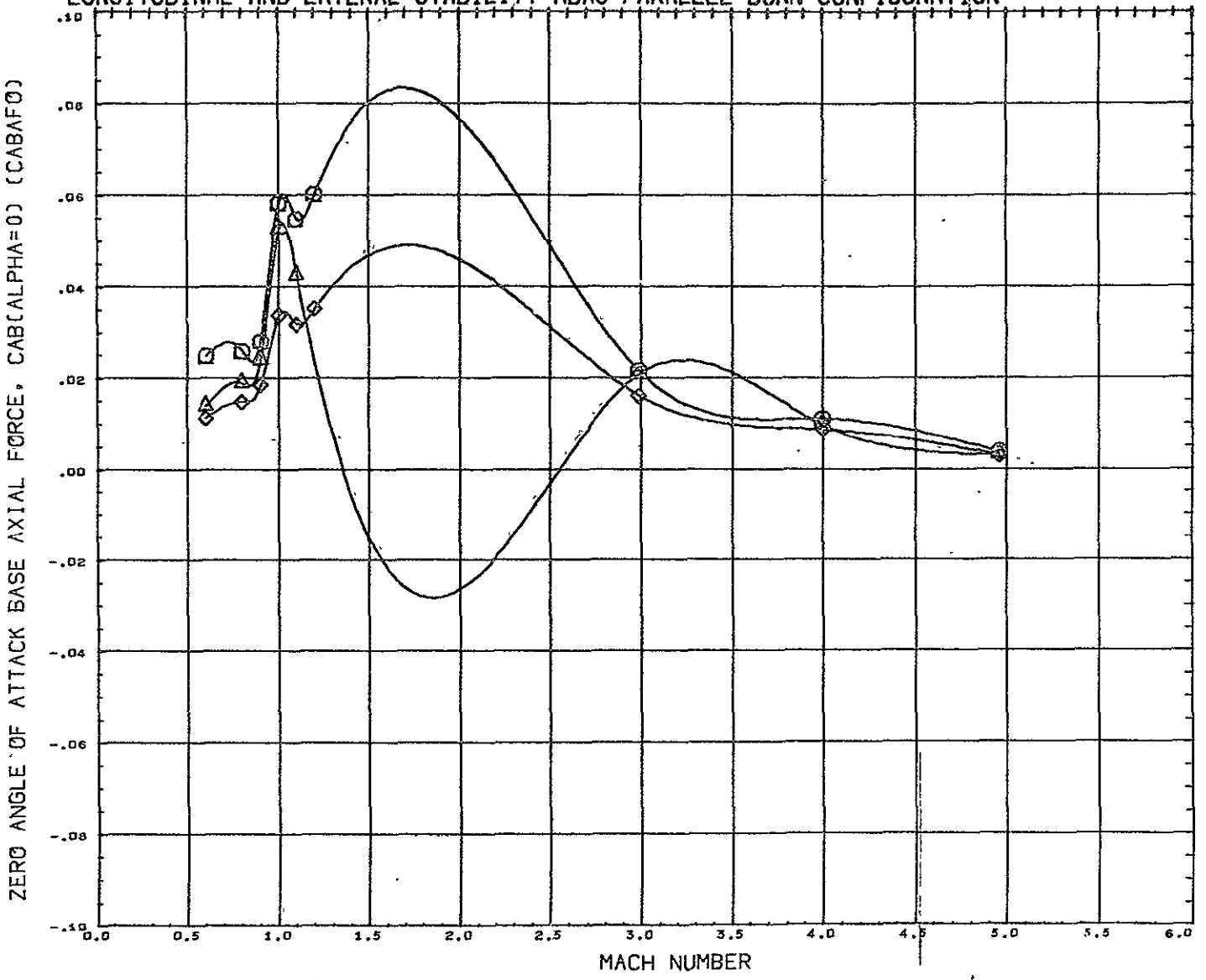


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(L43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(L43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(L43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

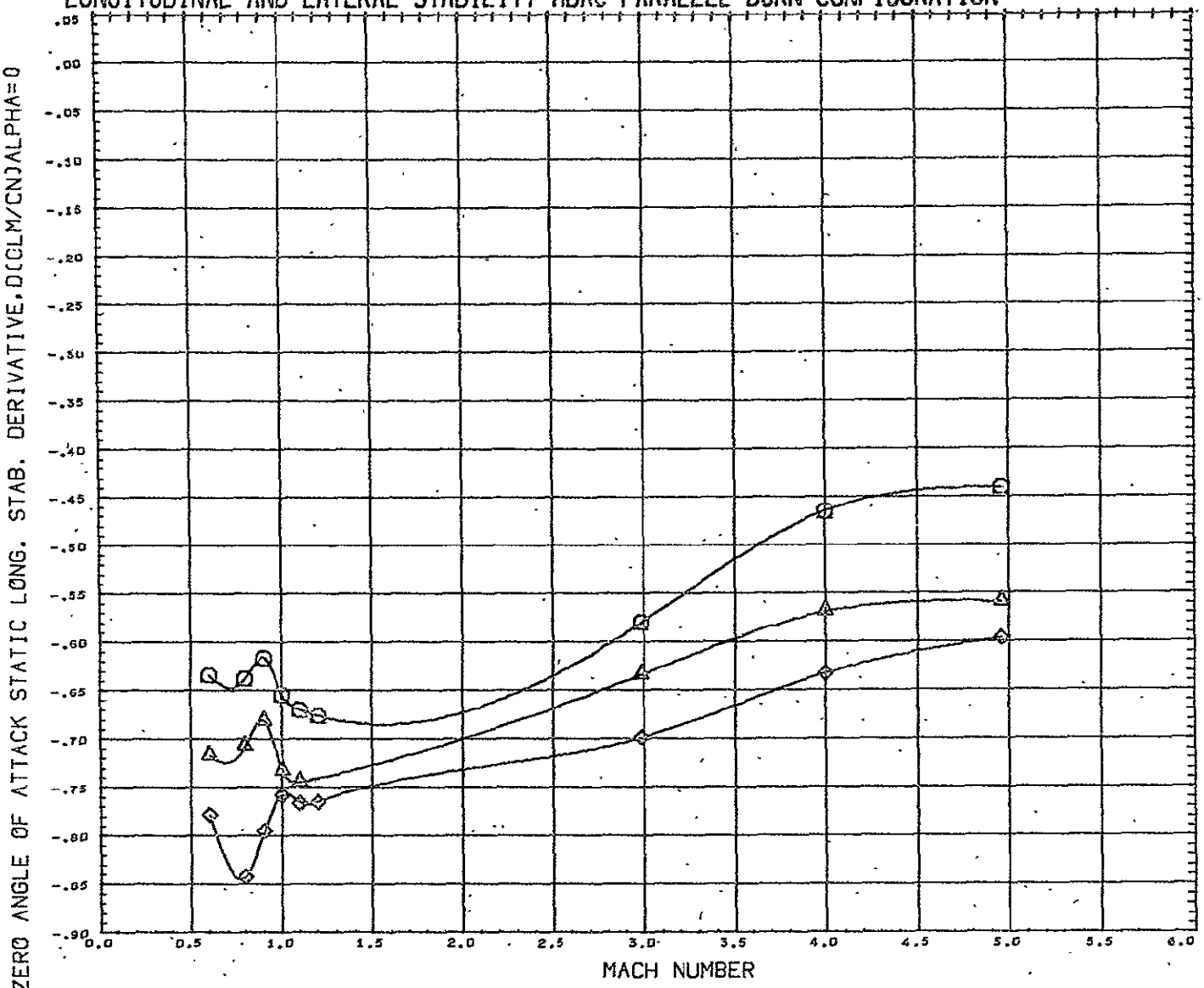


DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	
(L43011)		MSFC 501	MDAC PARALLEL BURN CONFIGURATION	L1
(L43021)		MSFC 501	MDAC PARALLEL BURN CONFIGURATION	L2
(L43001)		MSFC 501	MDAC PARALLEL BURN BOOSTER	B

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

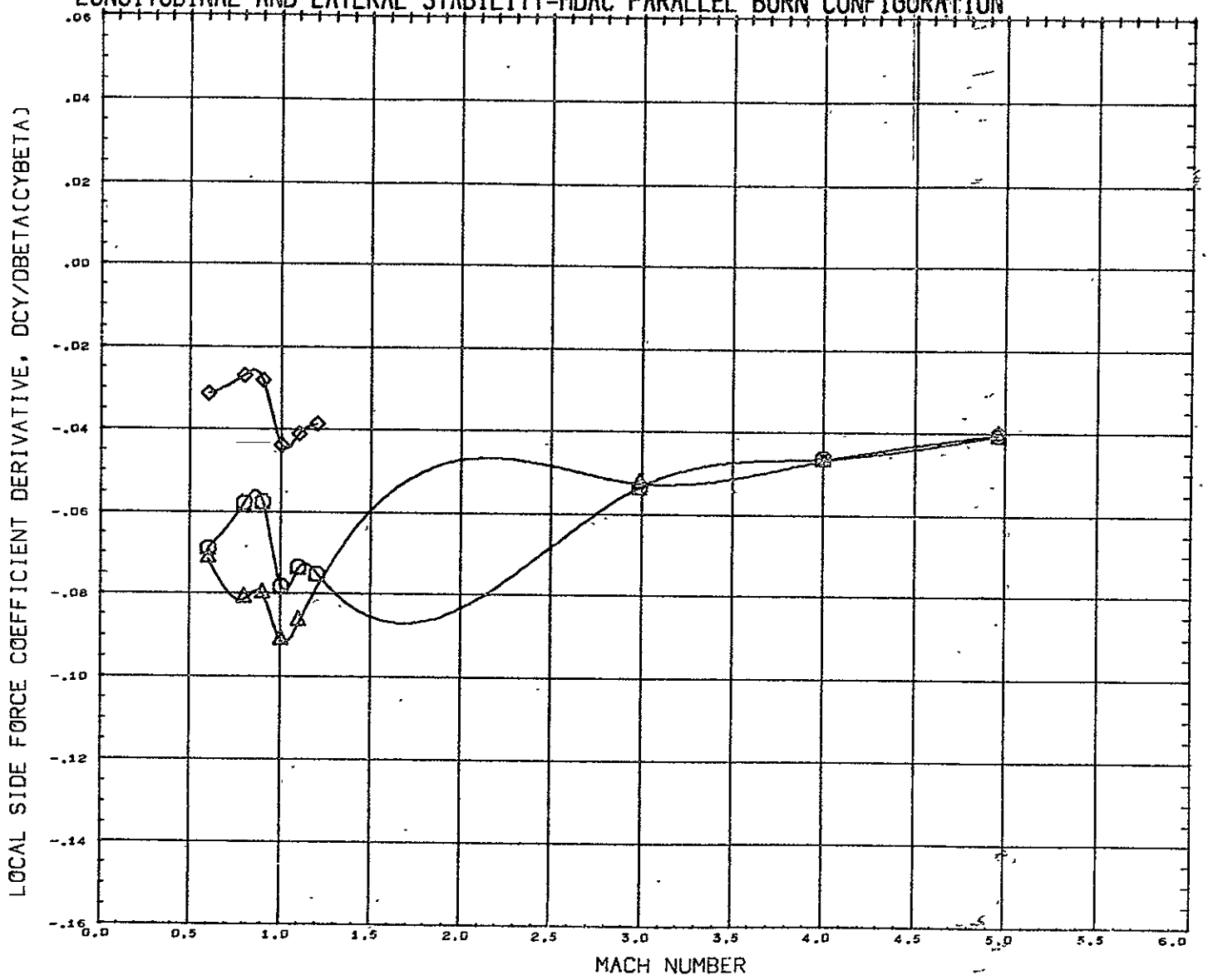


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(L43011)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(L43021)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(L43001)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



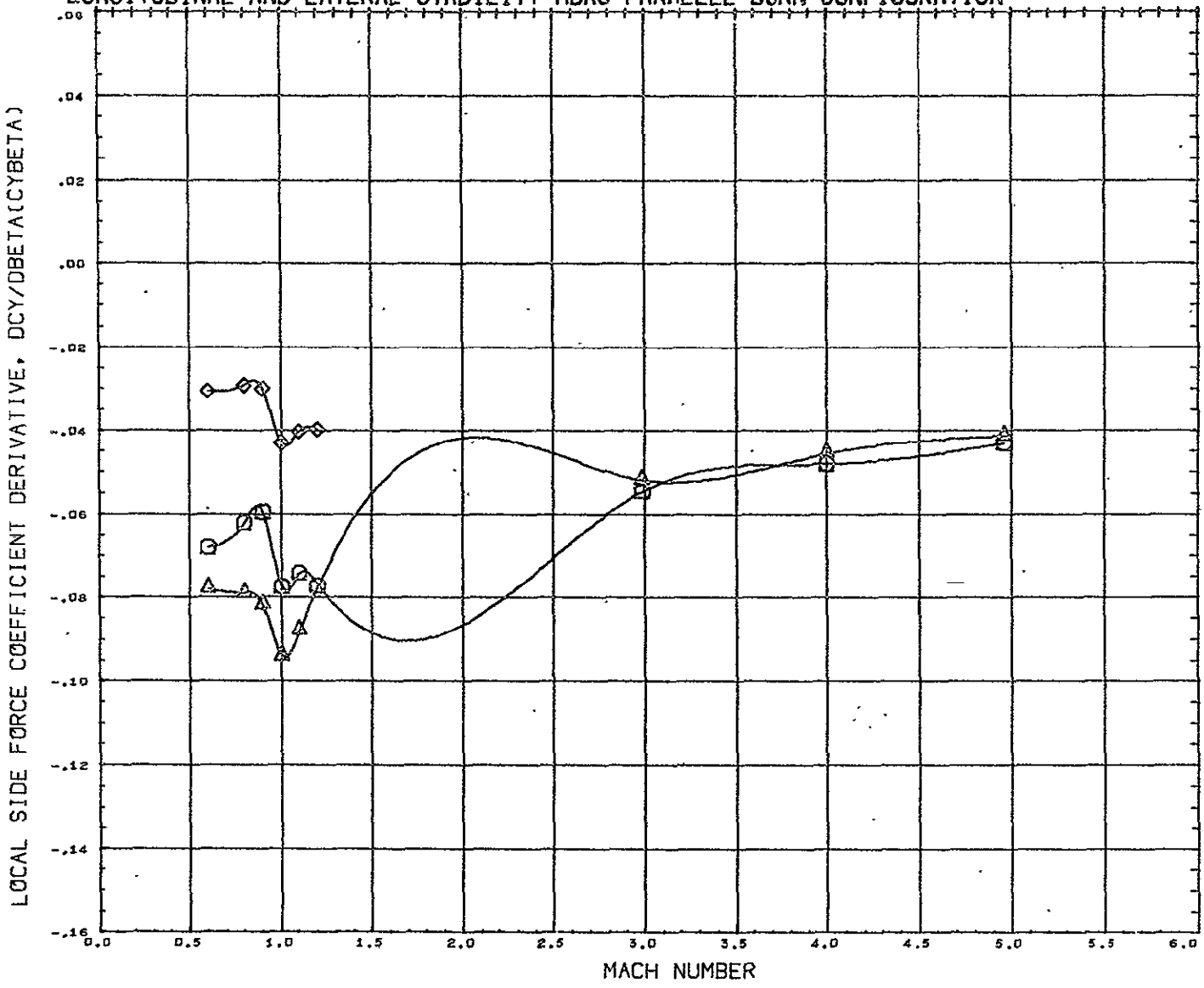
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(H43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(H43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(H43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA - 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



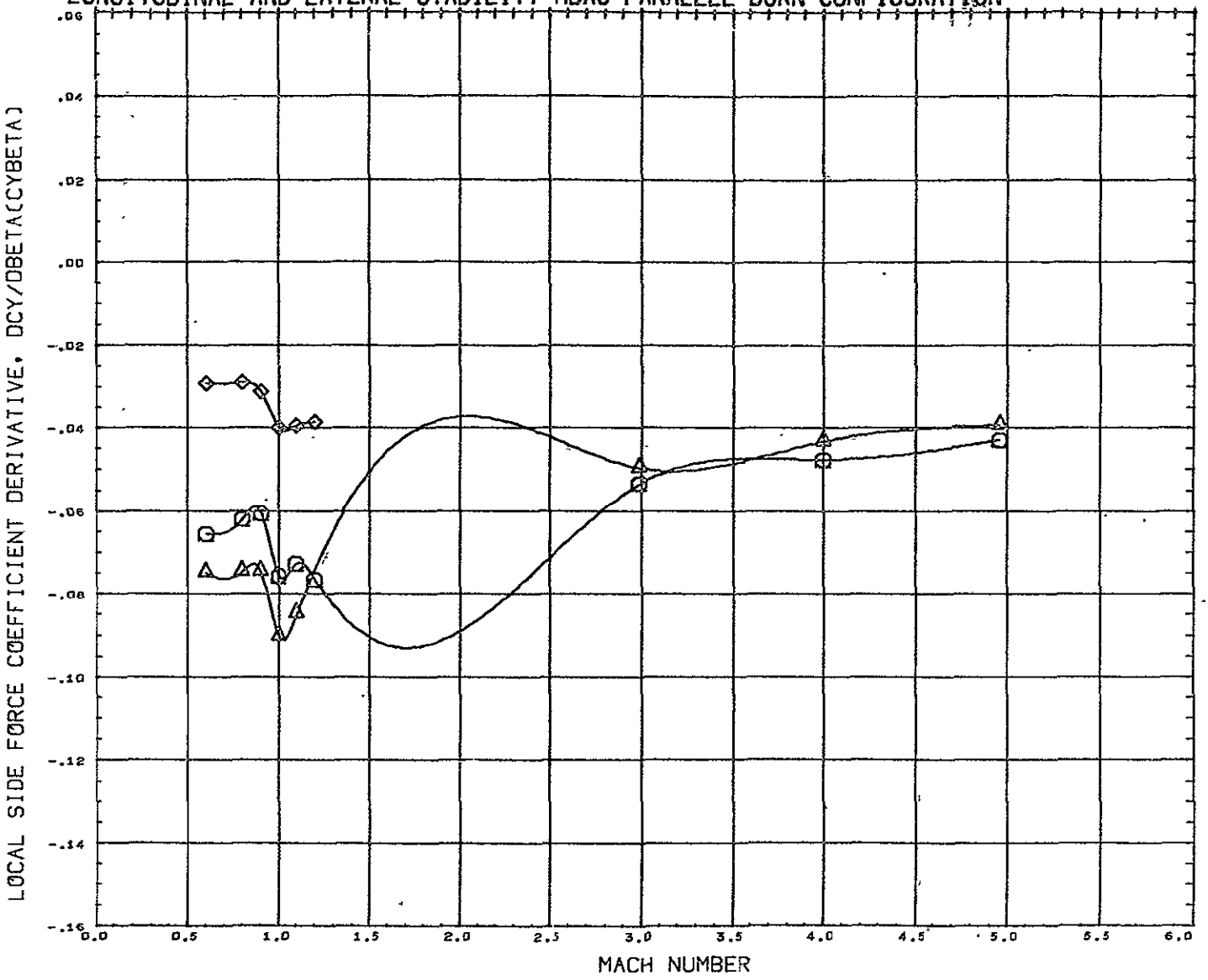
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	☐	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA = 2.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



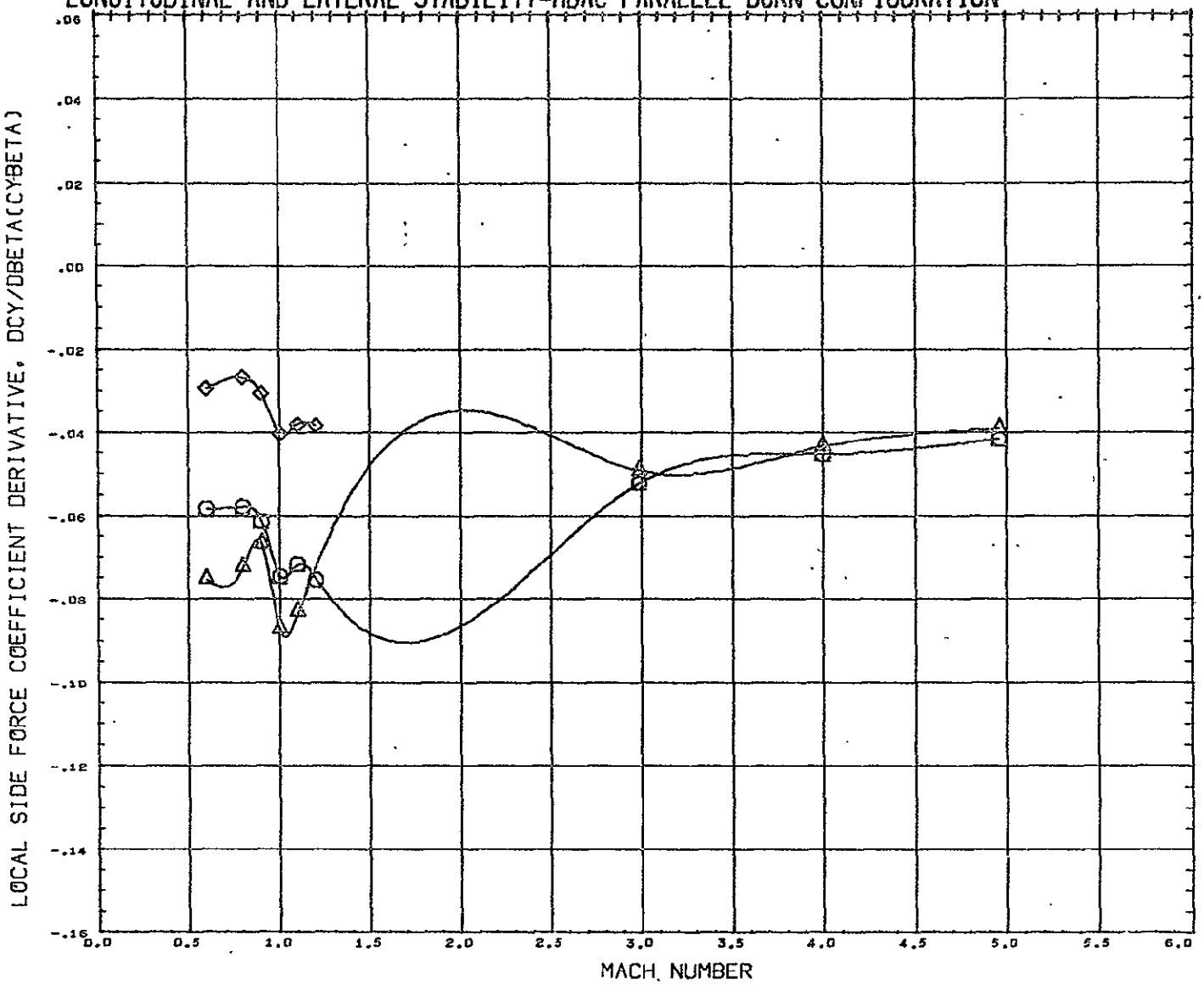
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 0.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

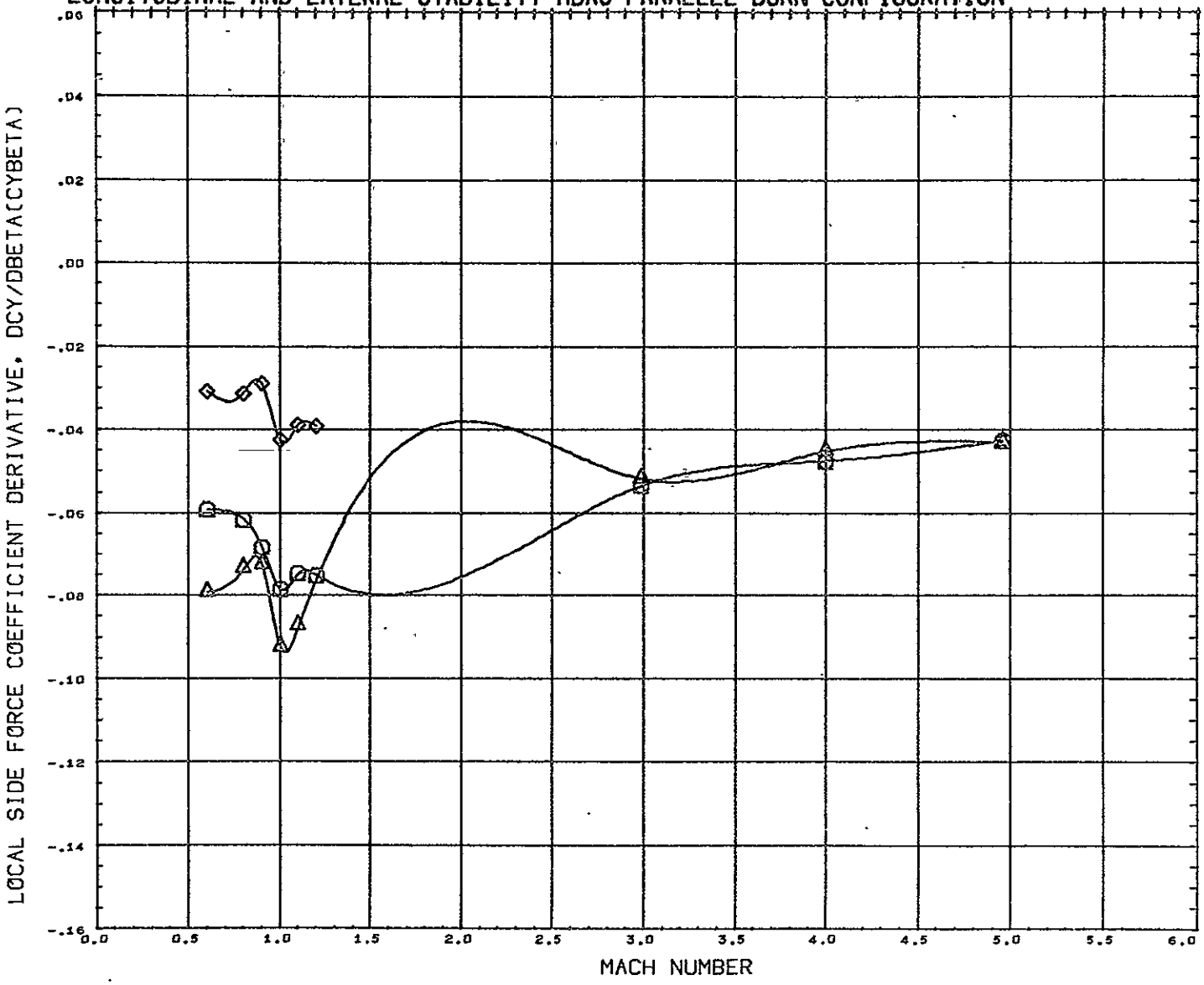


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 2.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



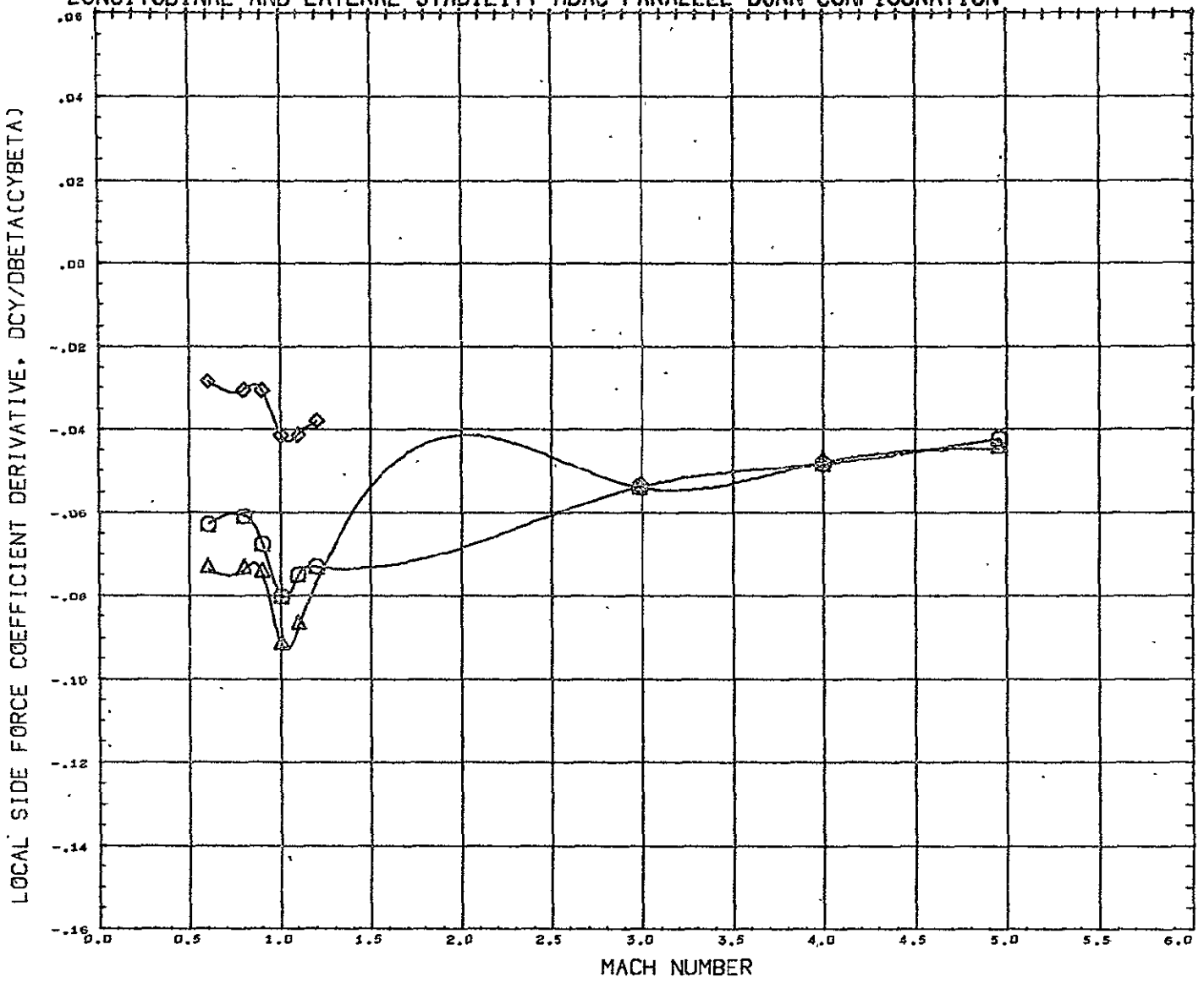
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

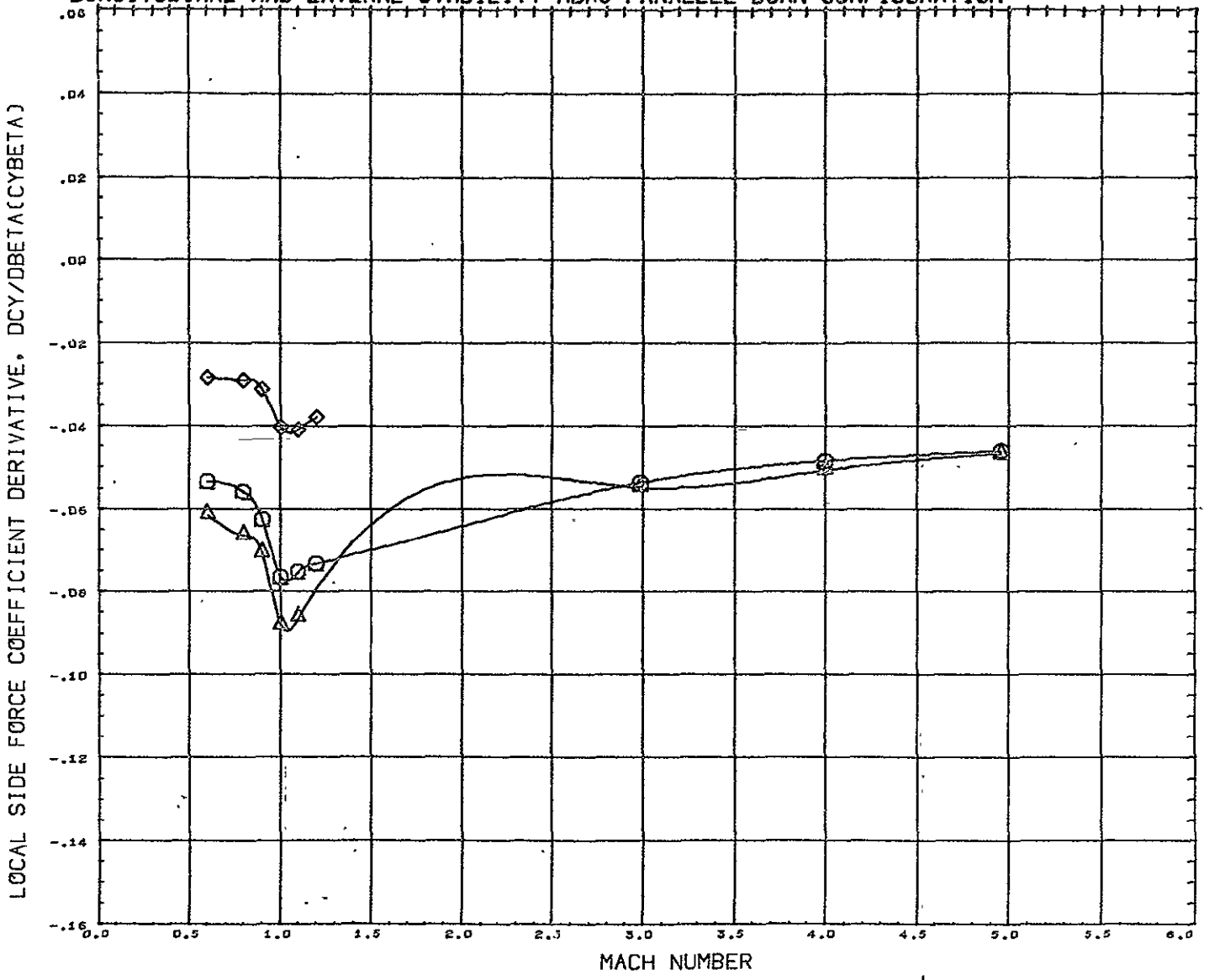


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 6.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.3300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

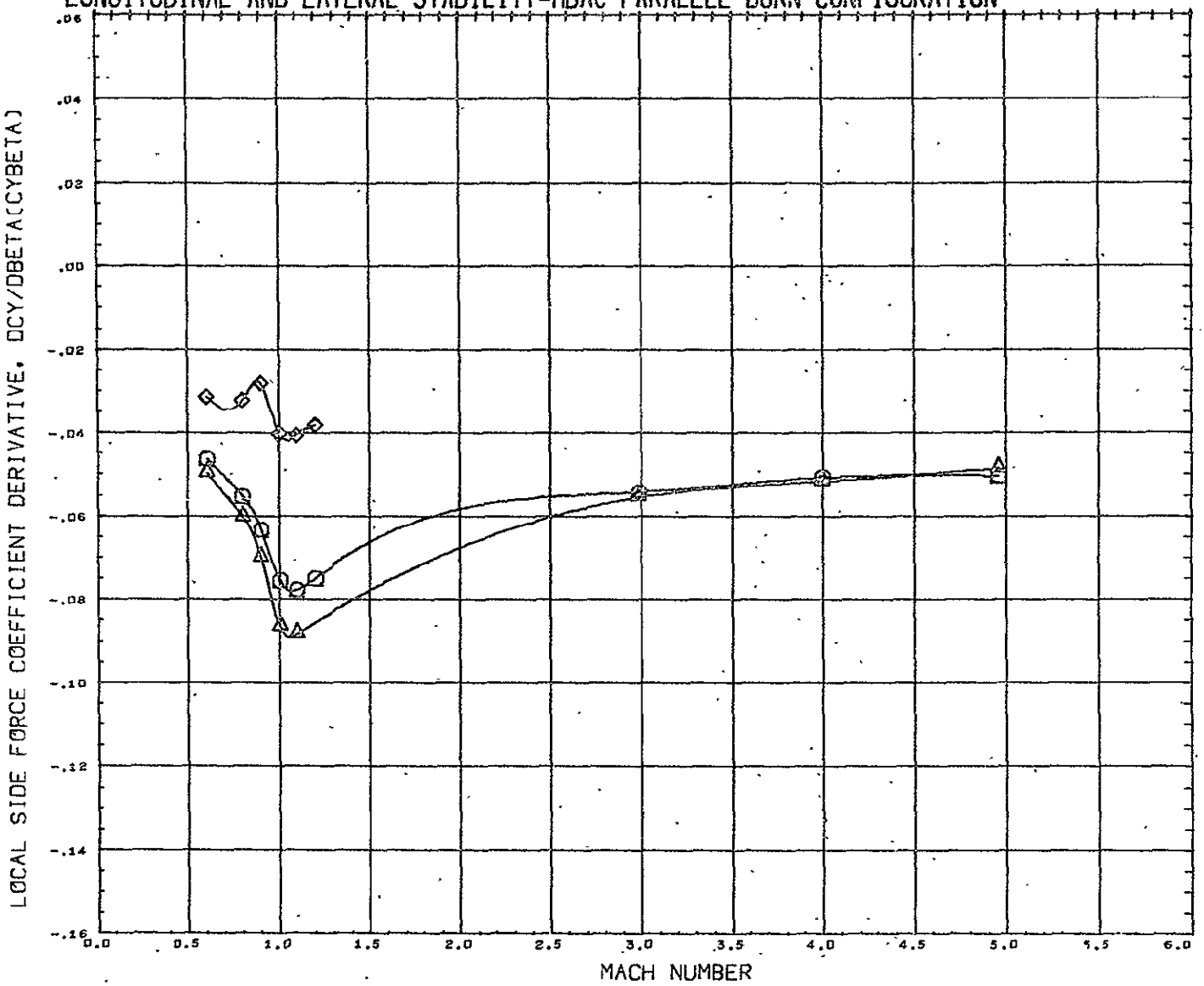


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 8.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



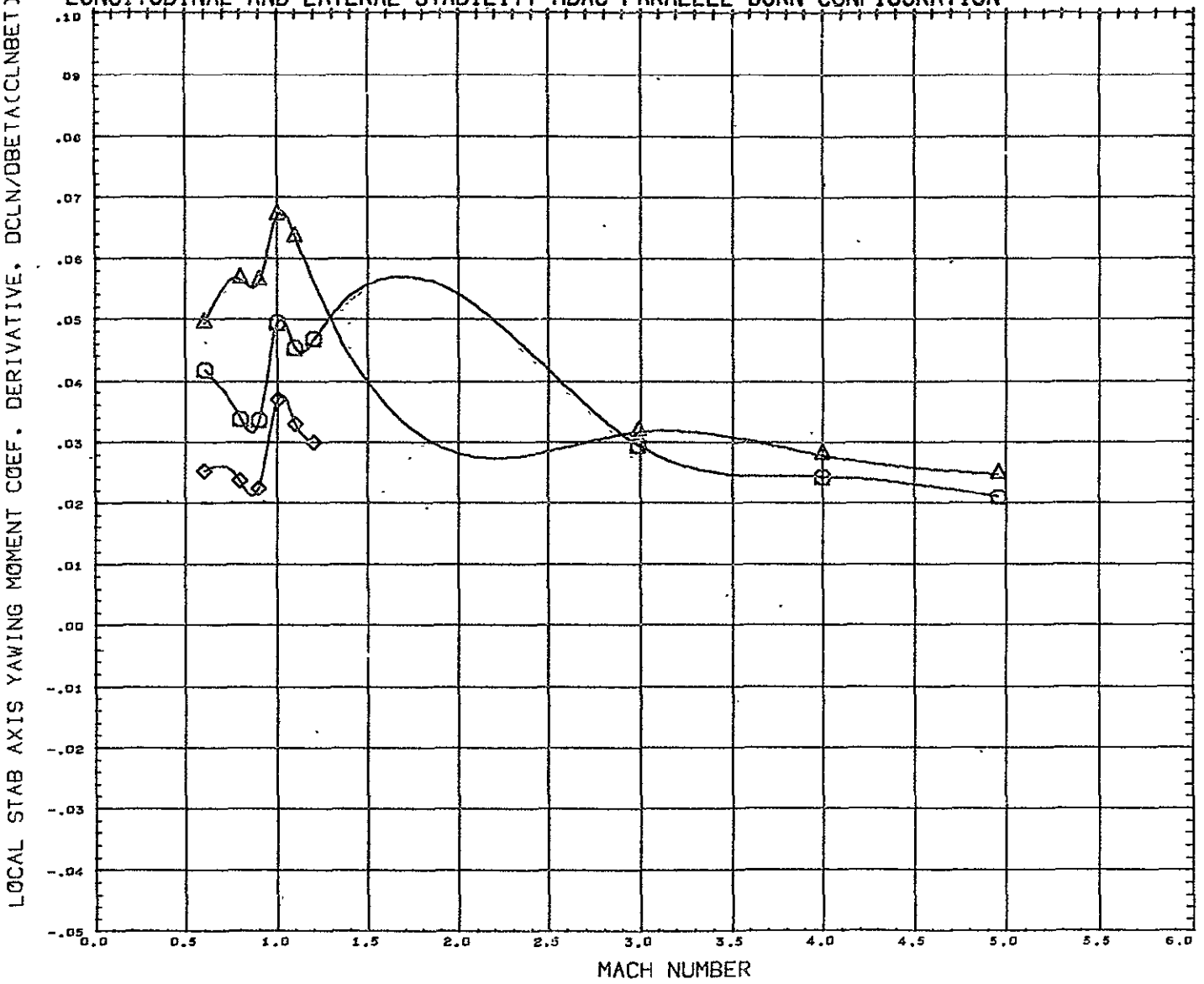
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 10.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



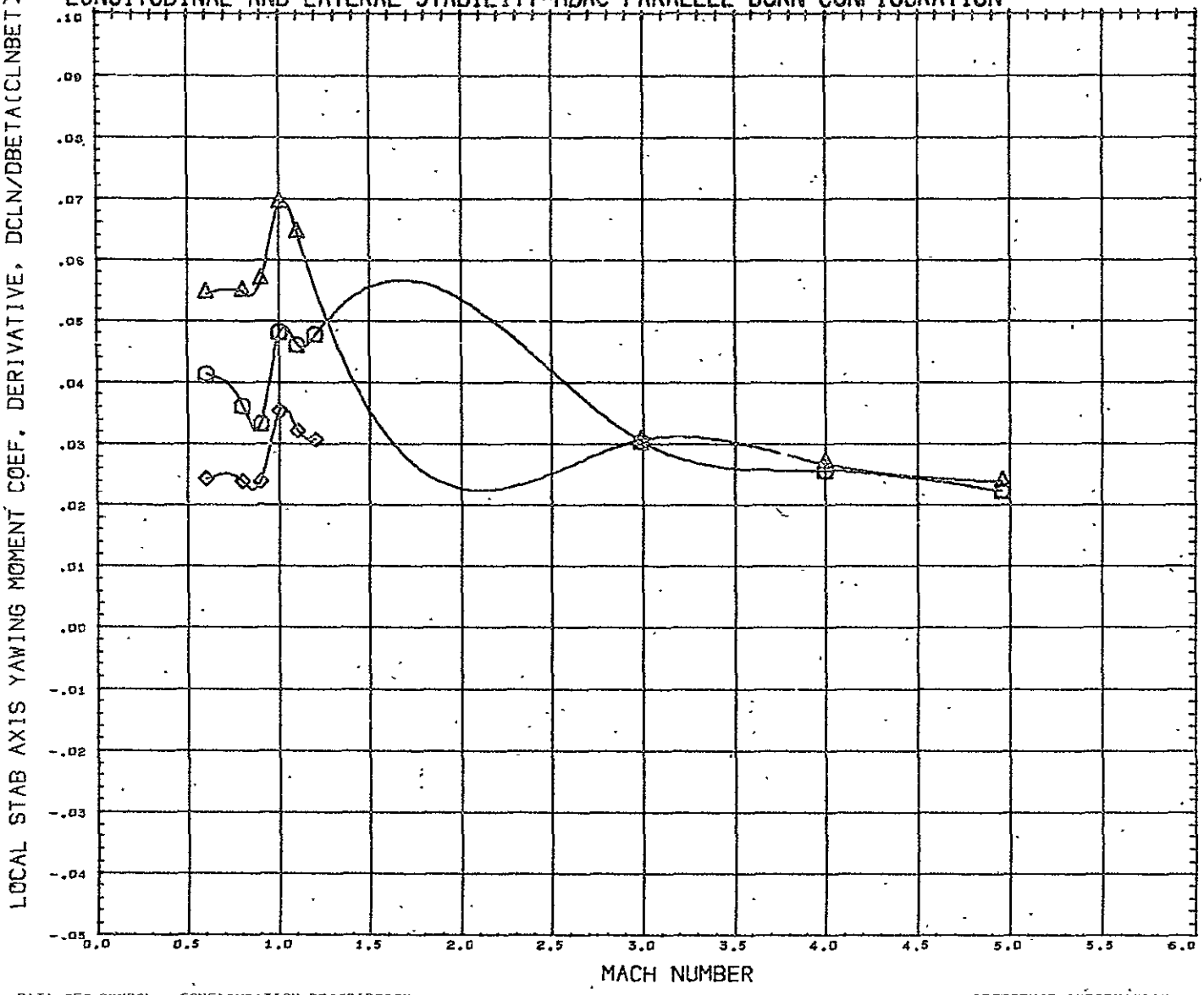
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA = 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

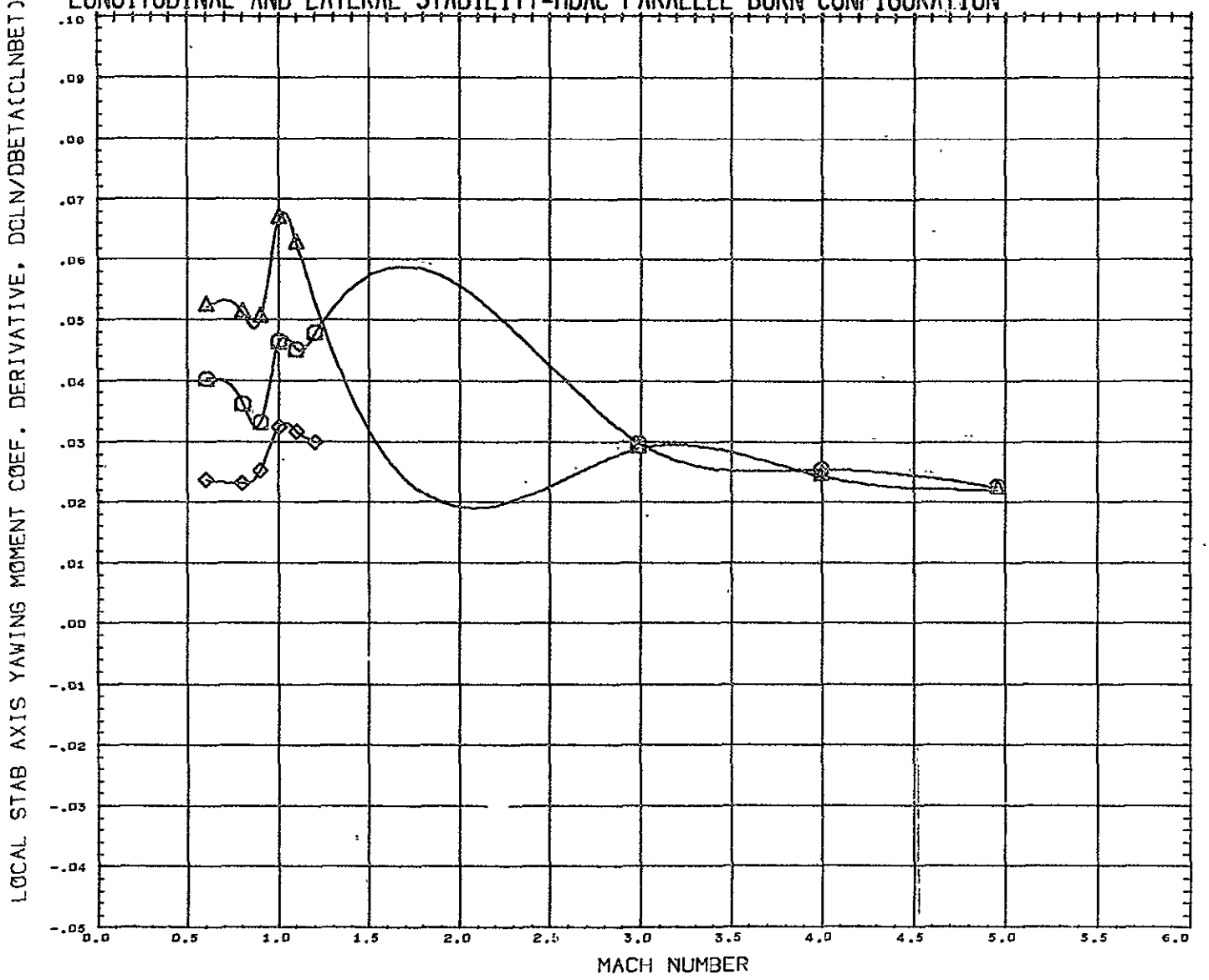


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(H43012)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(H43022)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(H43002)		MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA = 2.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



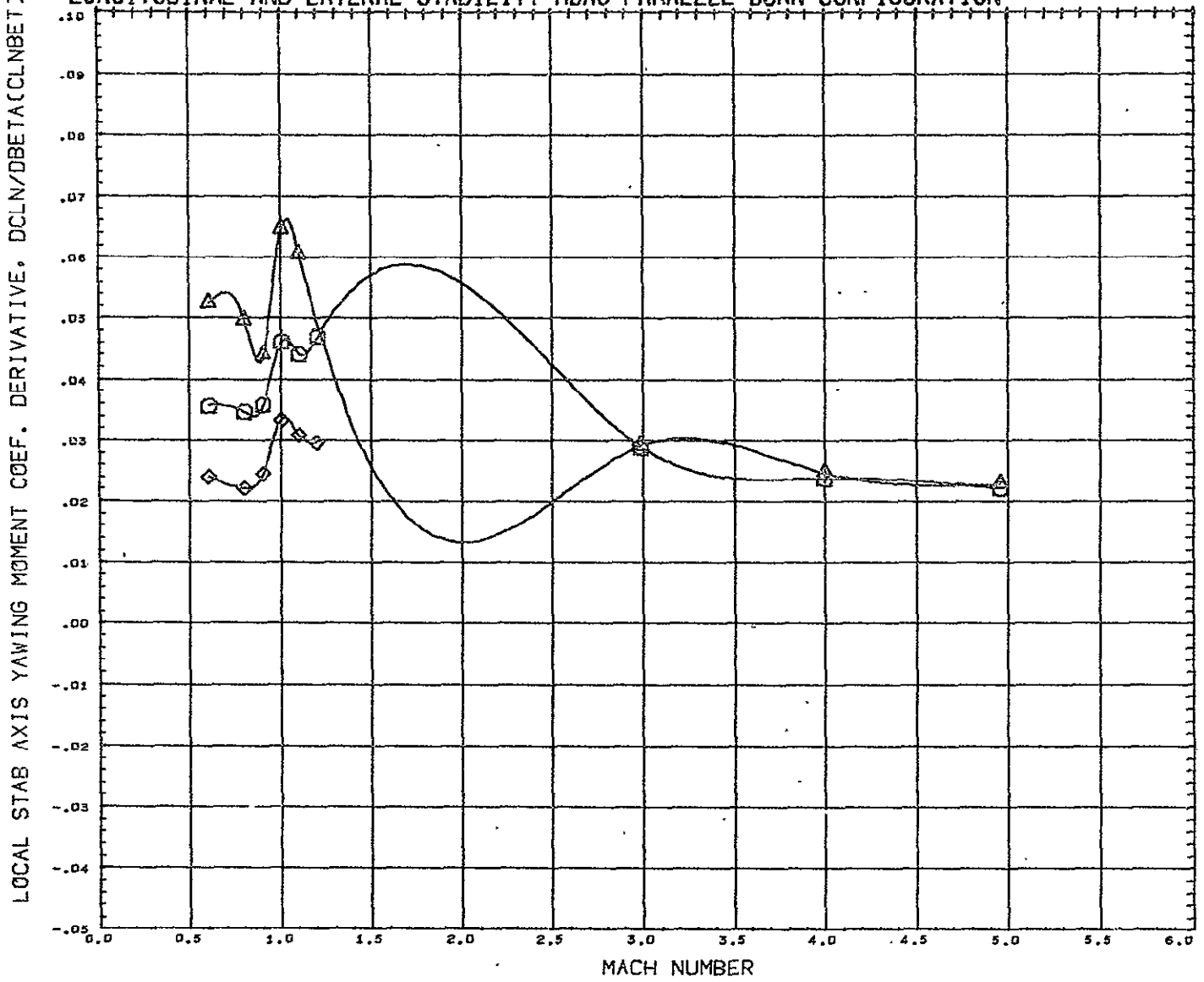
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 0.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

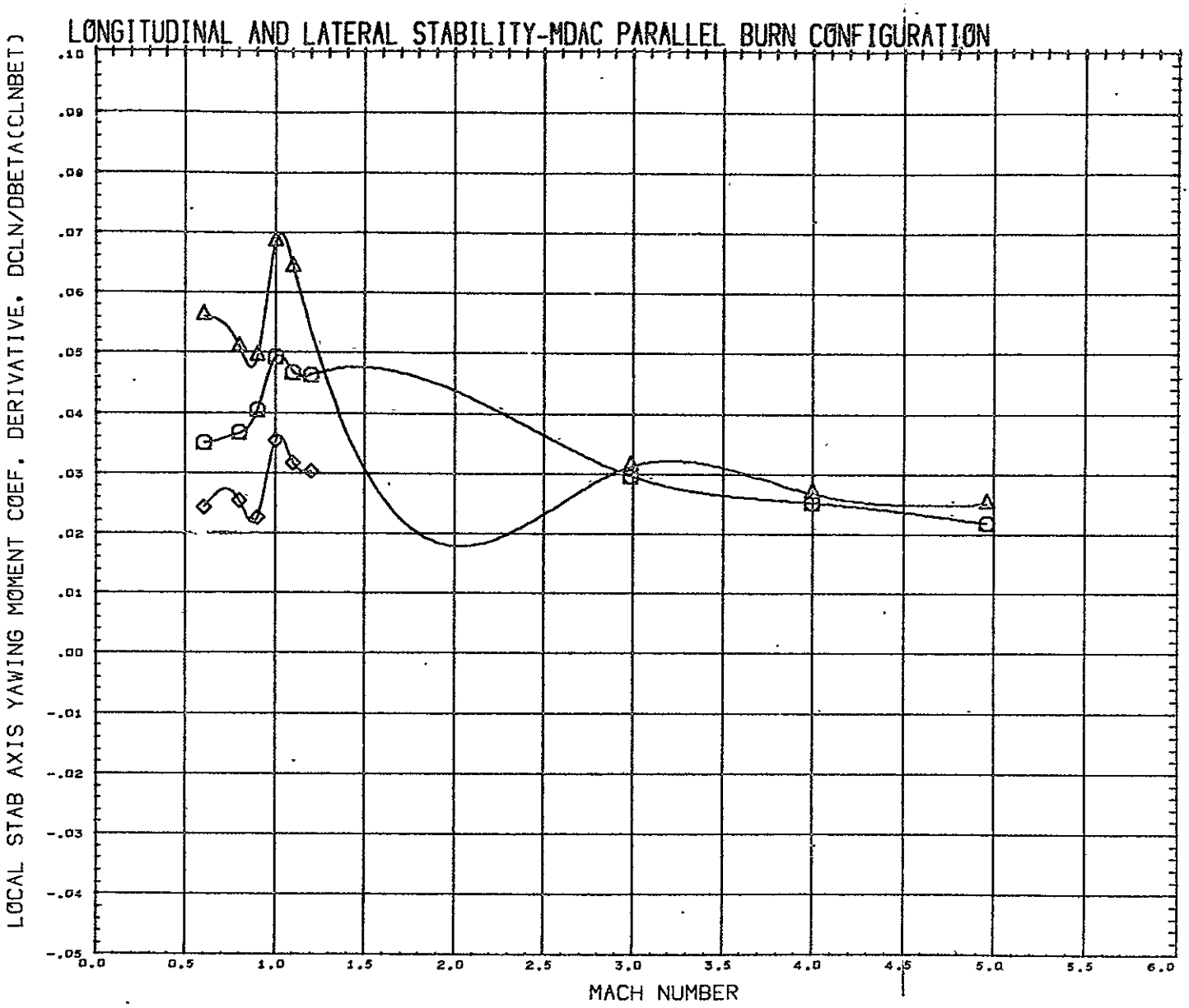


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 2.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	



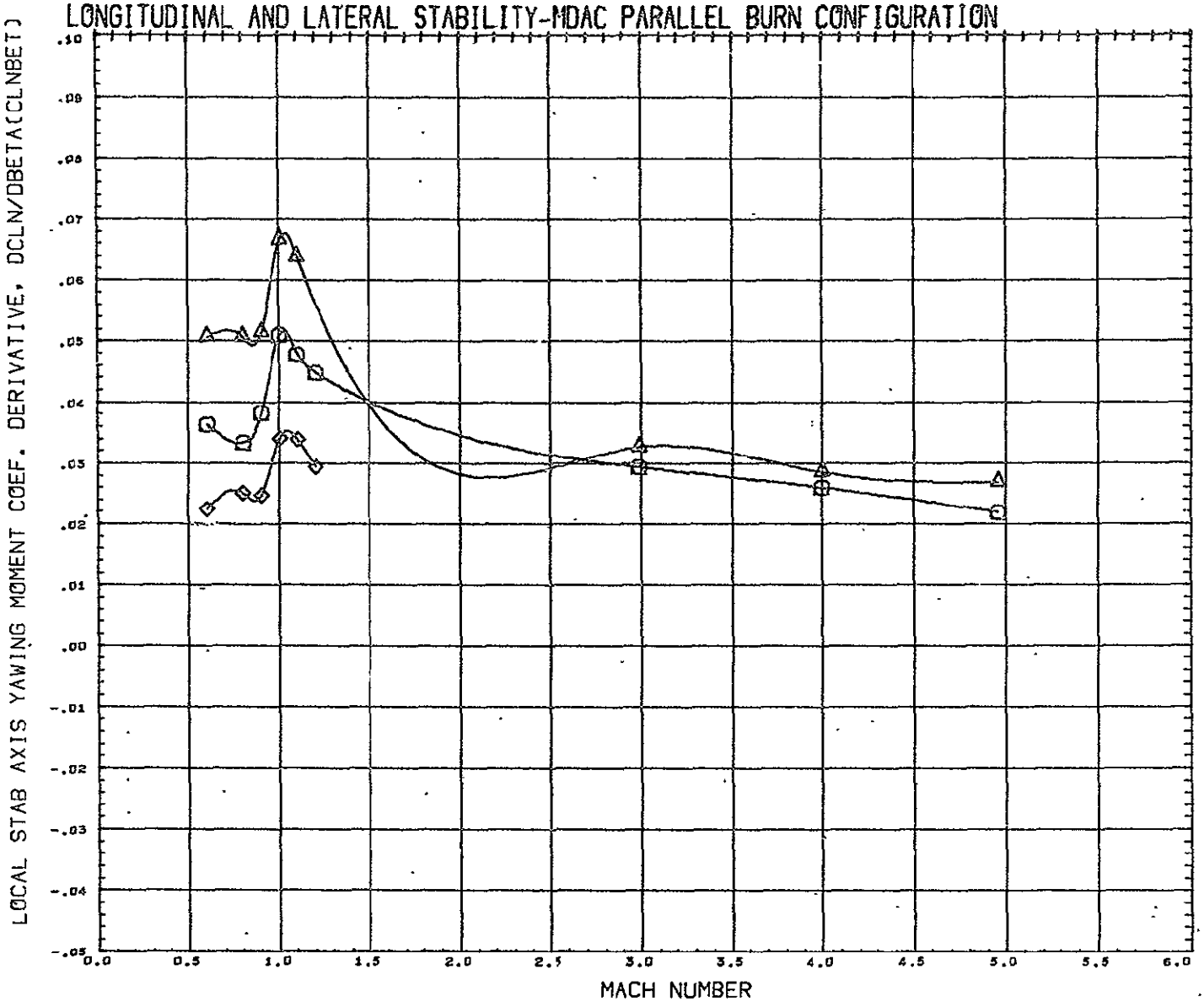
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0020	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



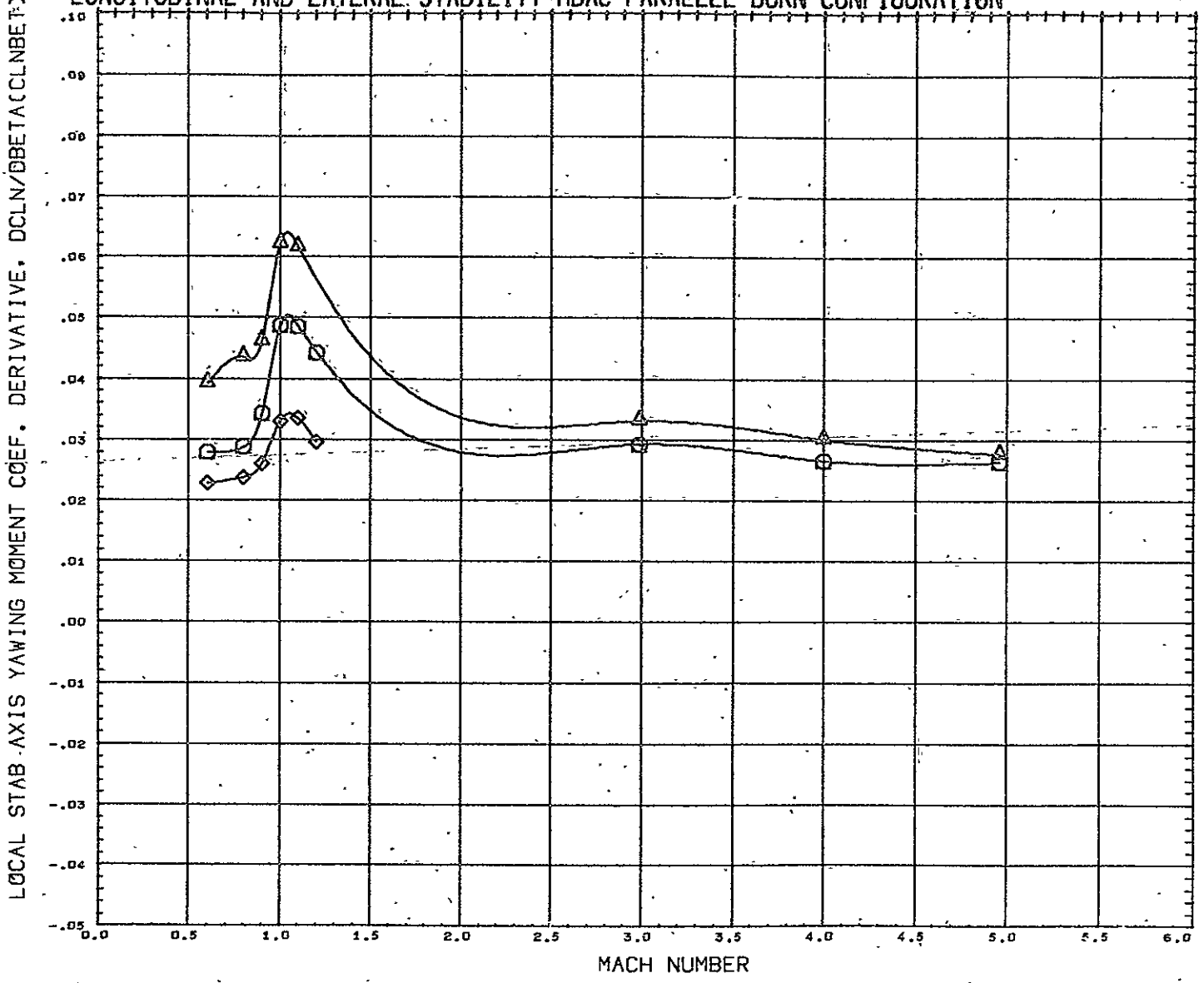
DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	
(M43012)	○	MSFC 501	MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501	MDAC PARALLEL BURN CONFIGURATION	L2
(M43DG2)	◇	MSFC 501	MDAC PARALLEL BURN BOOSTER	B

BETA 6.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

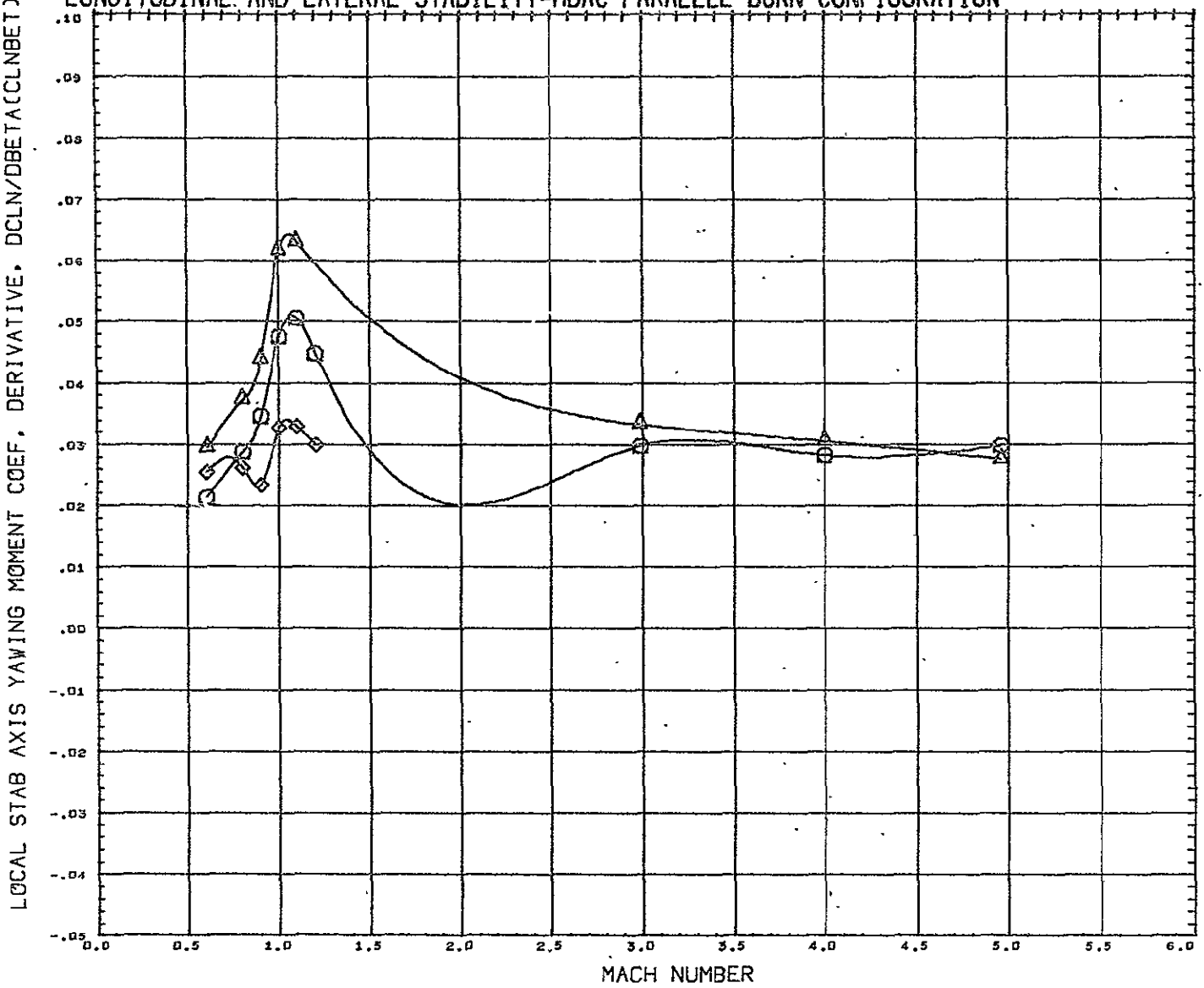


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 8.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

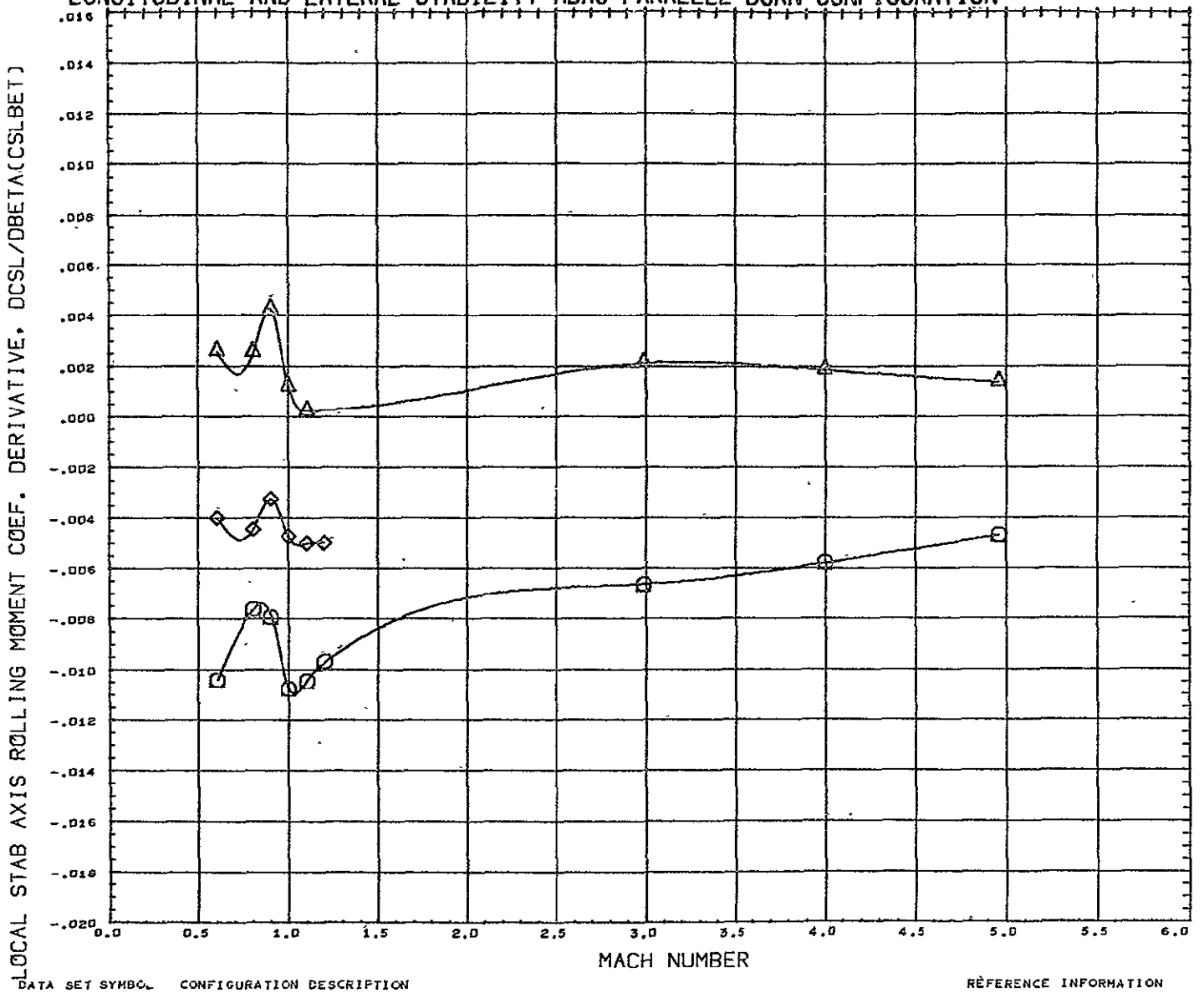


DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(M43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 10.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0020	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



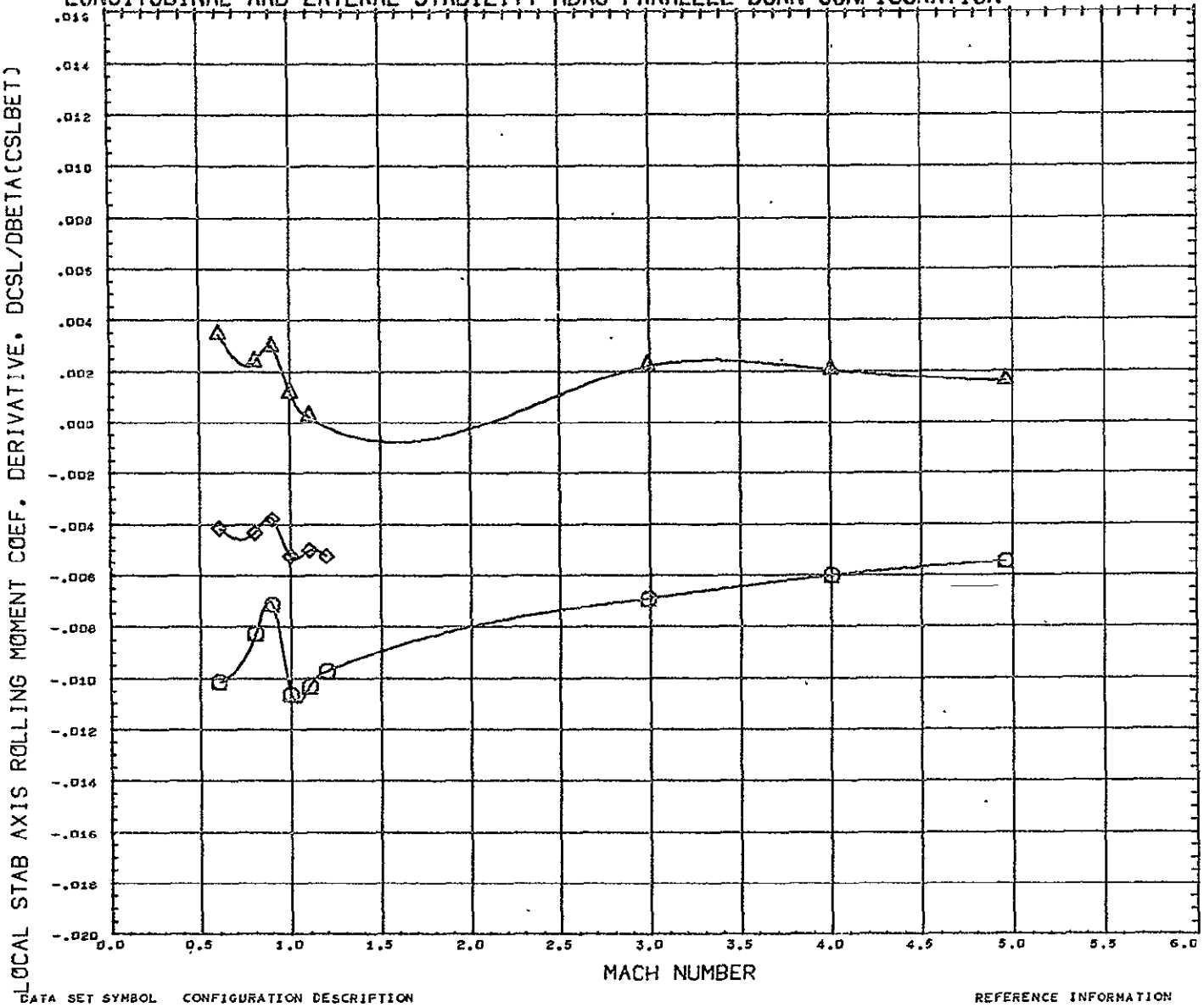
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA = 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0020	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



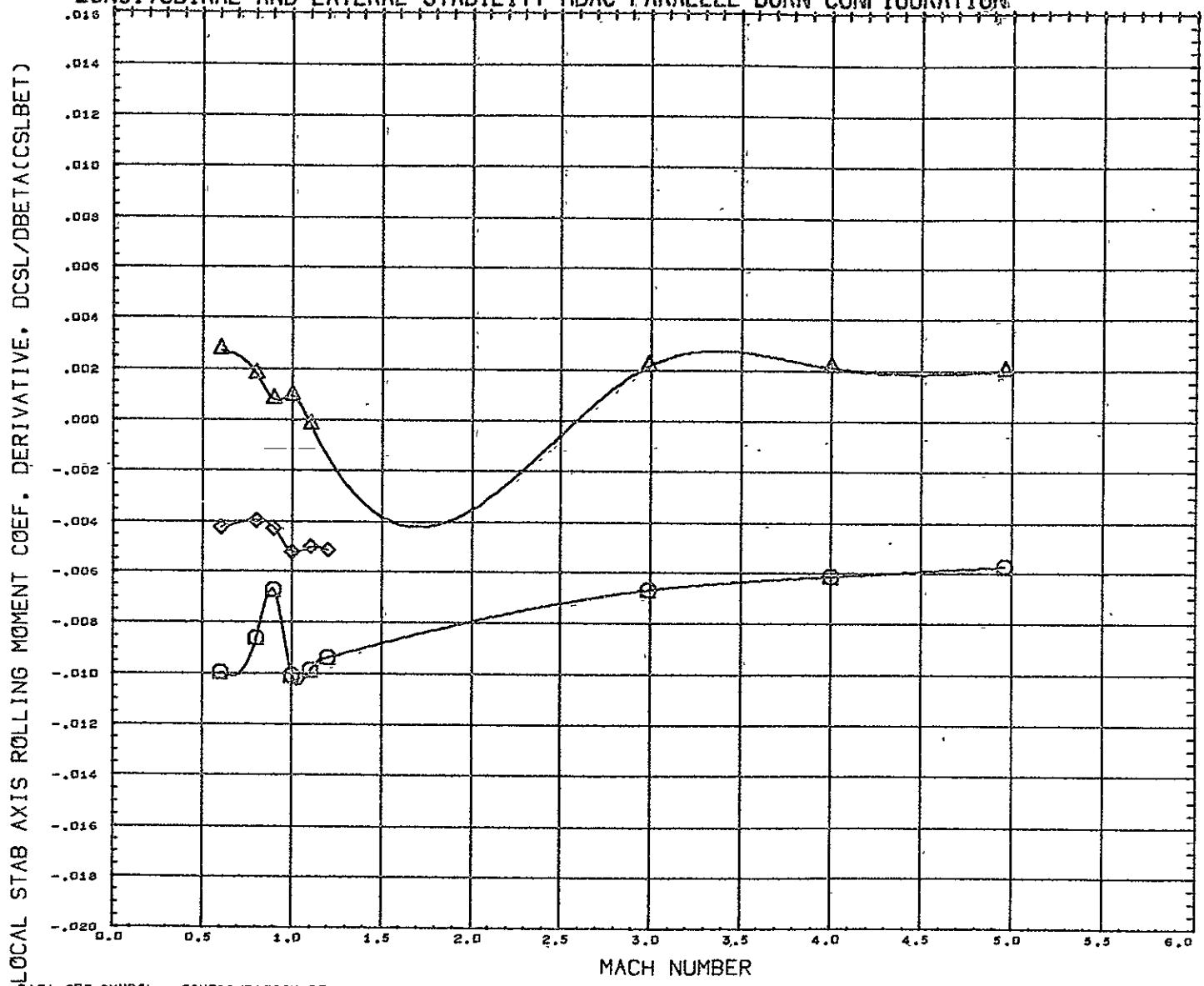
DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	
(M43012)		MSFC 501	MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)		MSFC 501	MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)		MSFC 501	MDAC PARALLEL BURN BOOSTER	B

BETA - 2.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



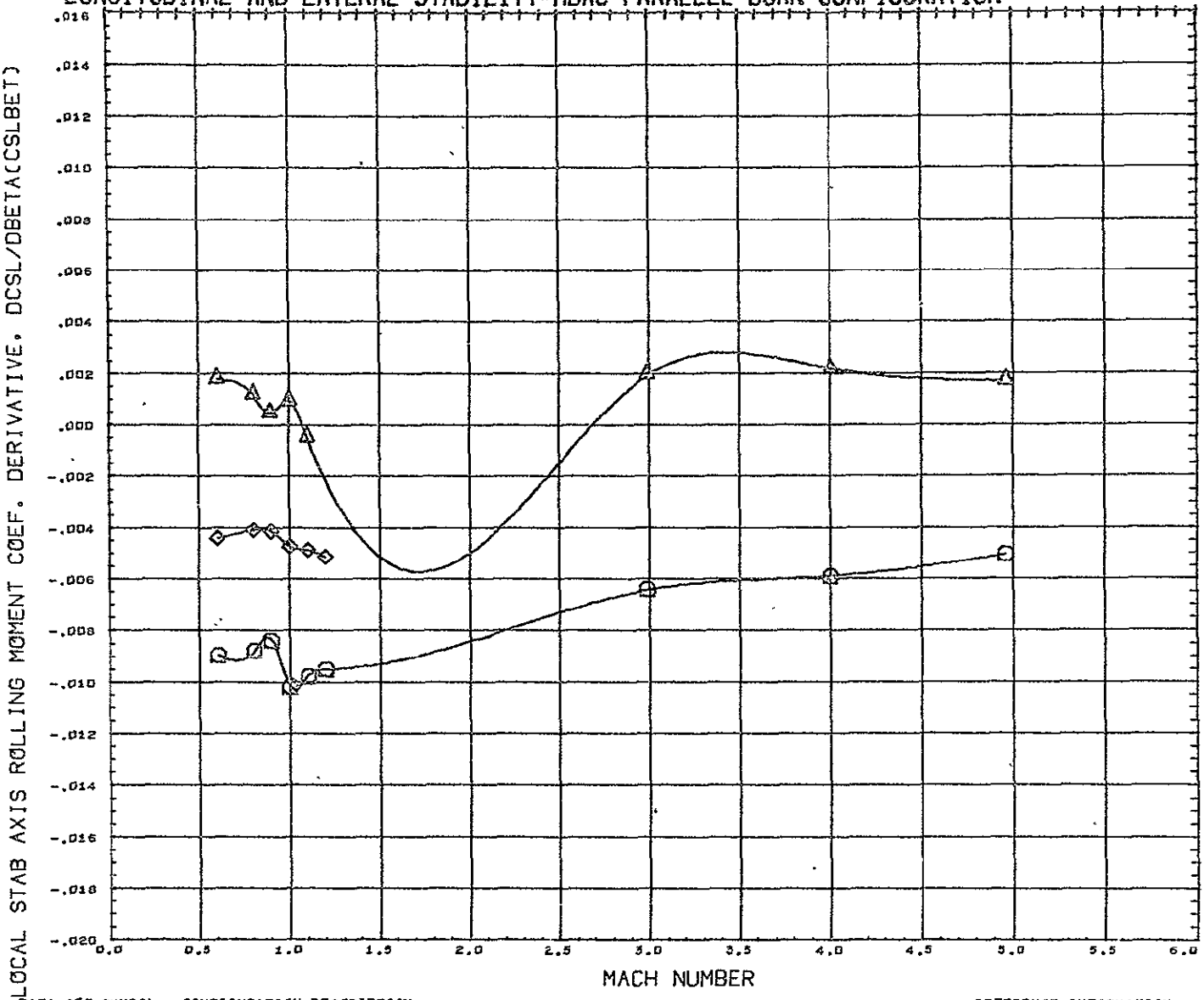
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(H43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(H43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(H43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 0.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



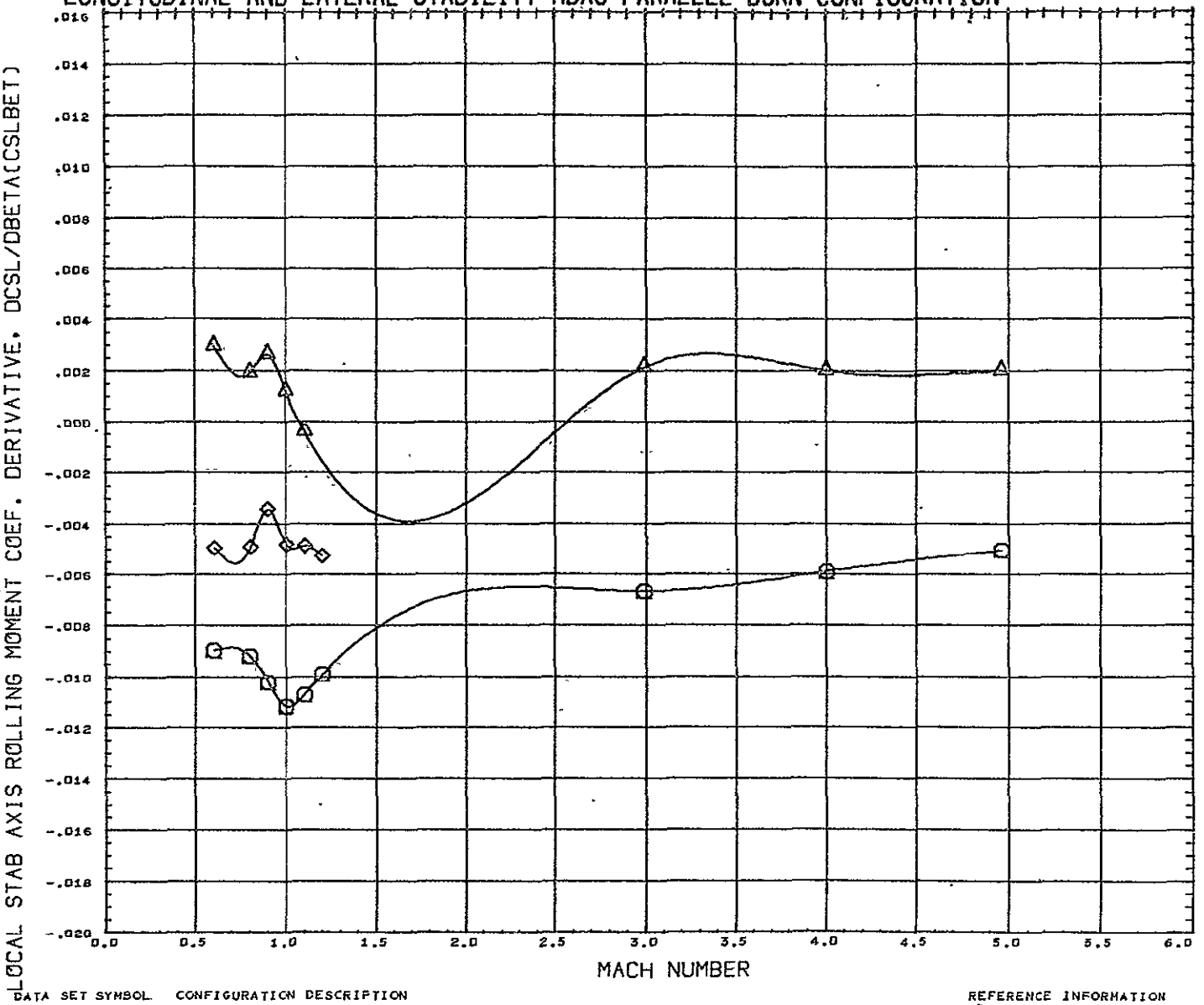
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(N43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(N43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(N43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 2.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

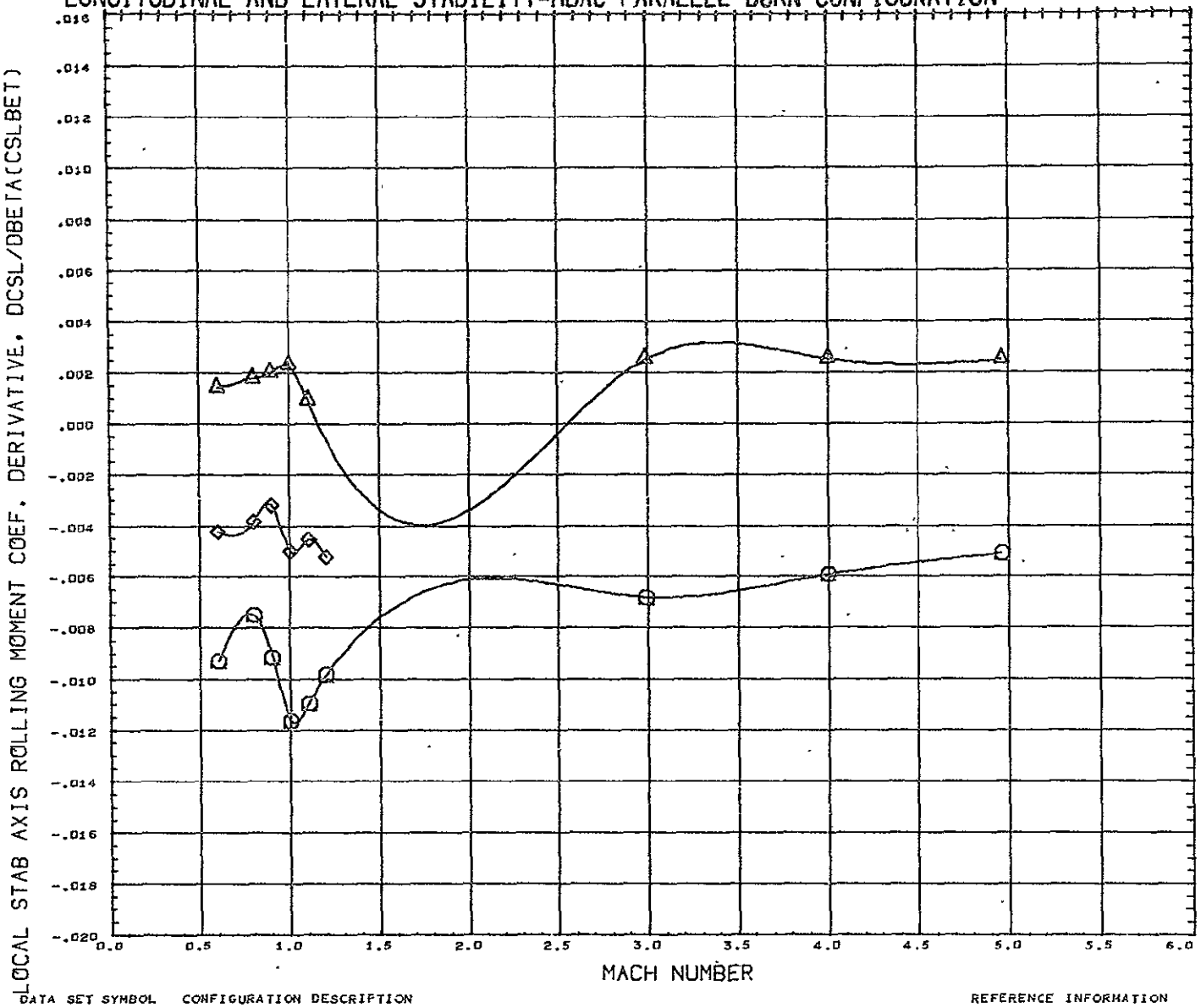


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(M43012)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(M43022)	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(M43002)	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 4.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRF	0.0000	IN.
YMRF	0.0000	IN.
ZMRF	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



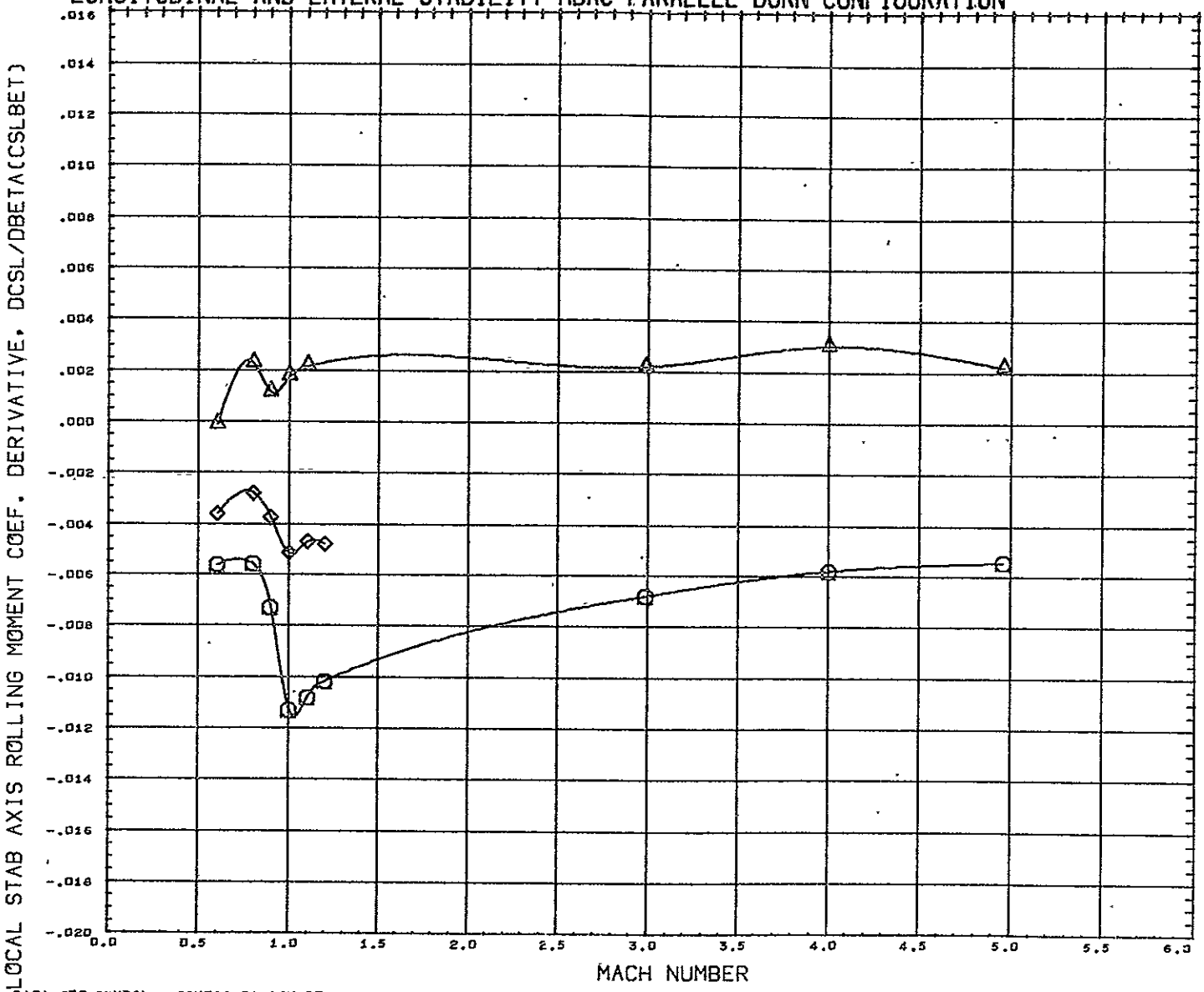
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(H43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(H43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(H43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 6.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



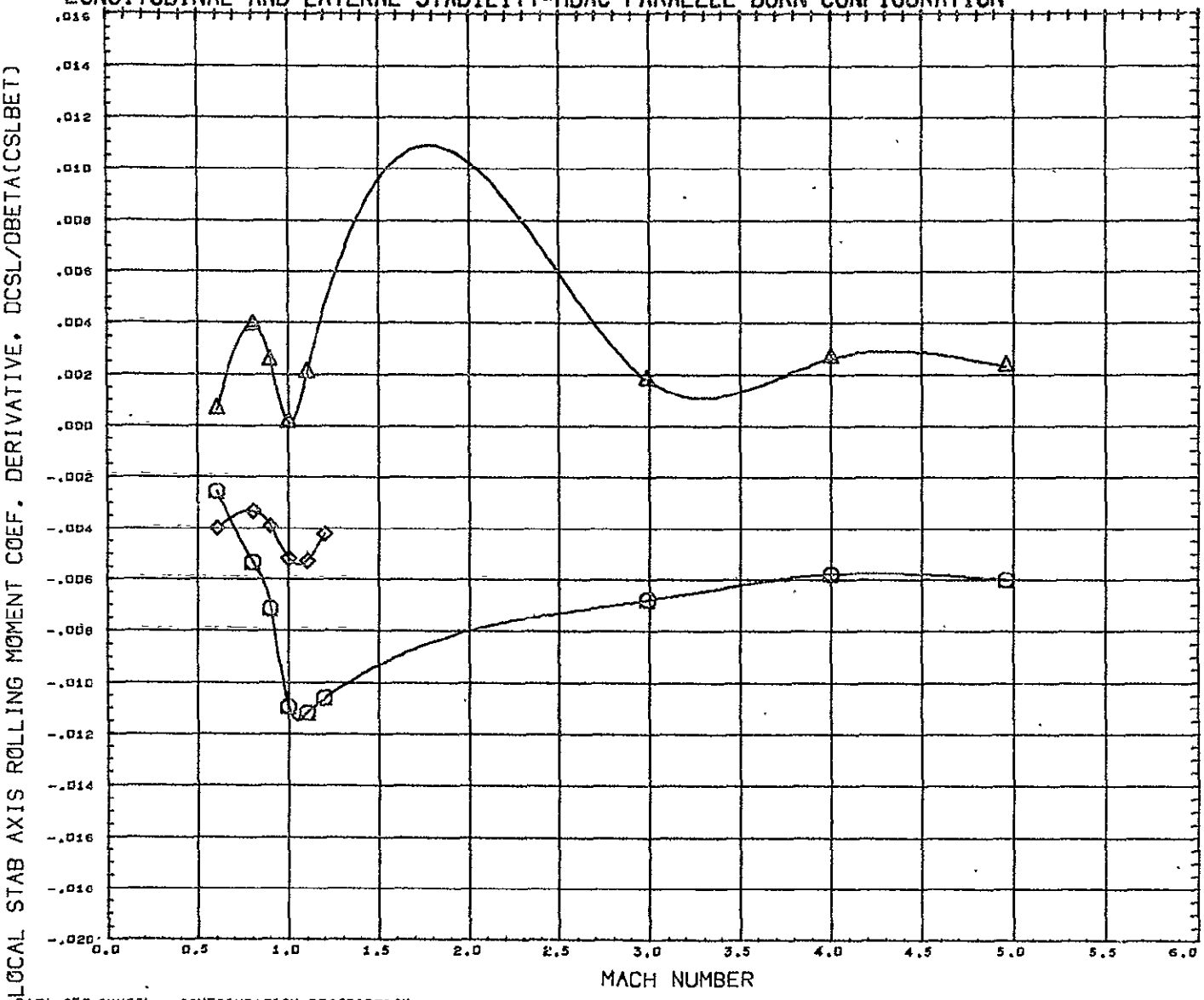
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(H43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(H43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(H43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 8.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

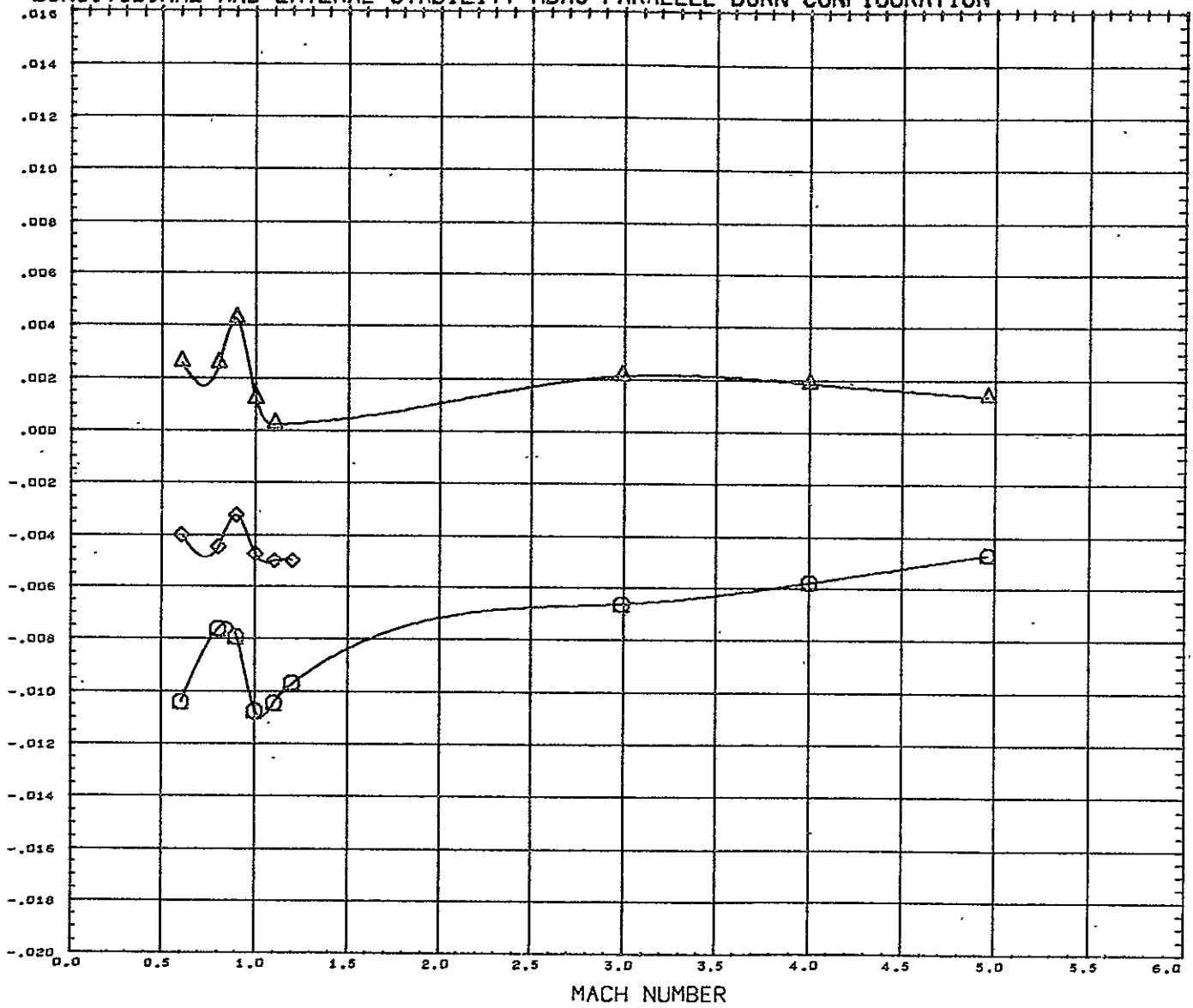


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(H43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(H43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(H43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 10.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



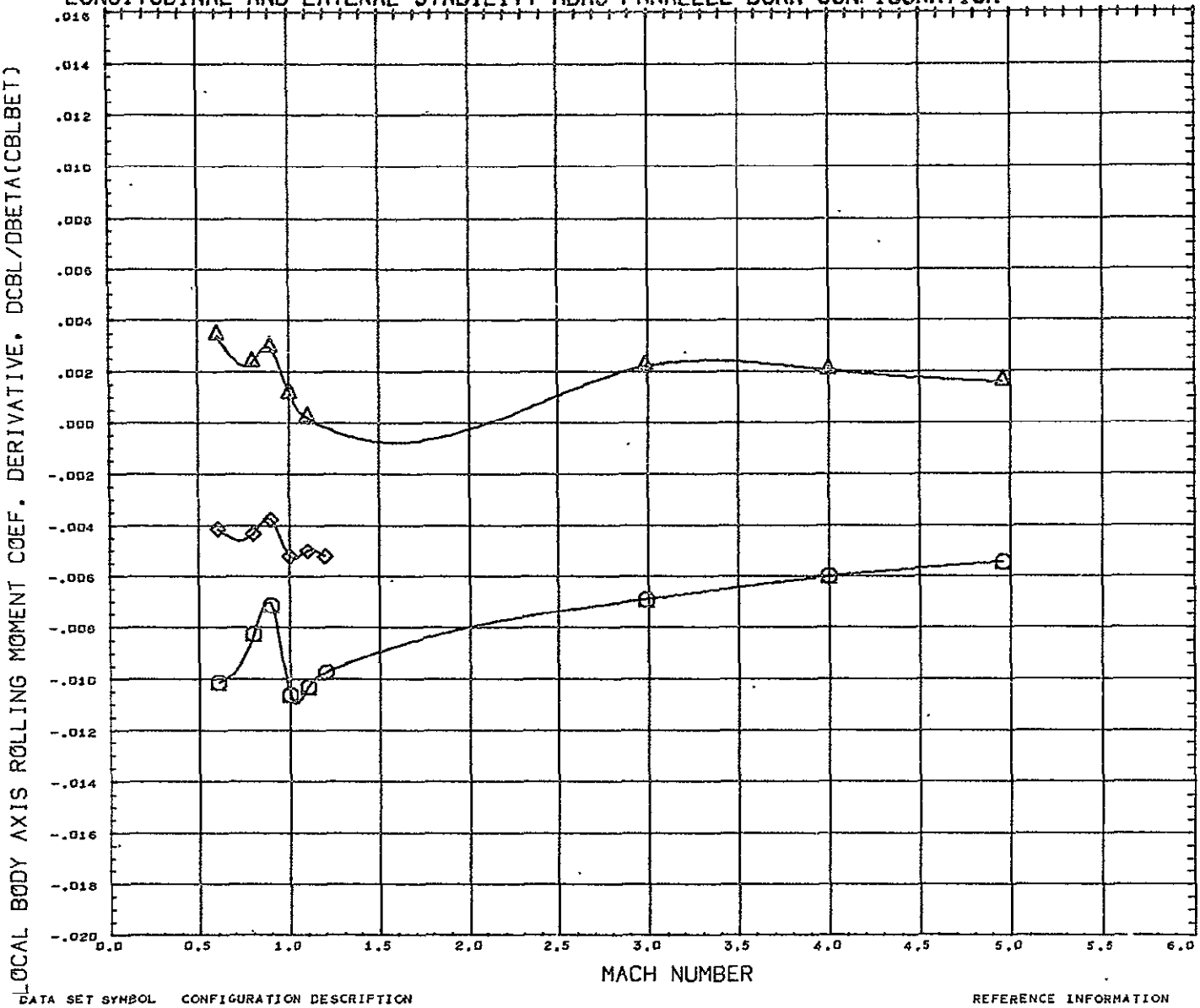
DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(I43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(I43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(I43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA = 4.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

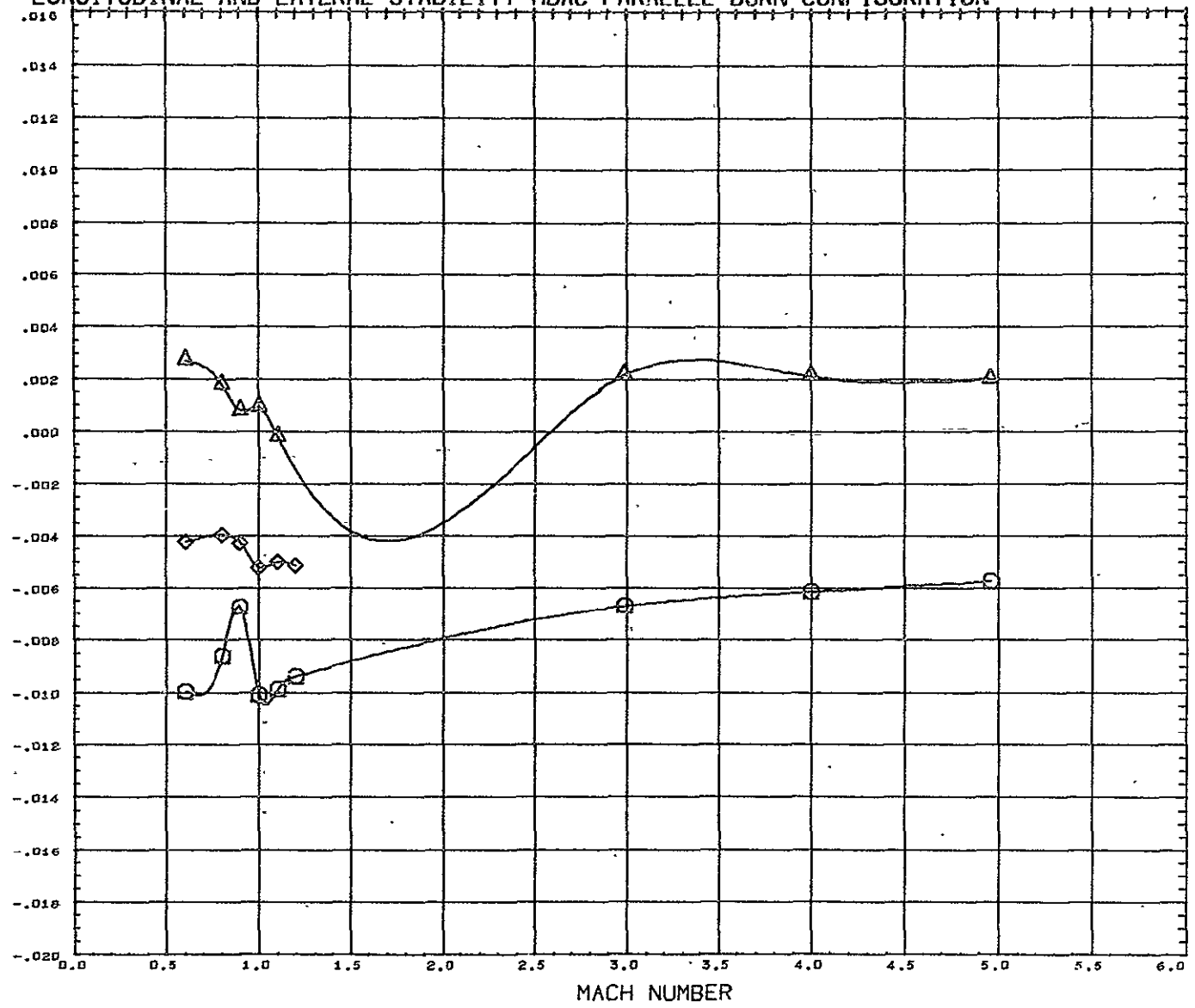


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(143012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(143022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(143002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA - 2.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRF	0.0000	IN.
YMRF	0.0000	IN.
ZMRF	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



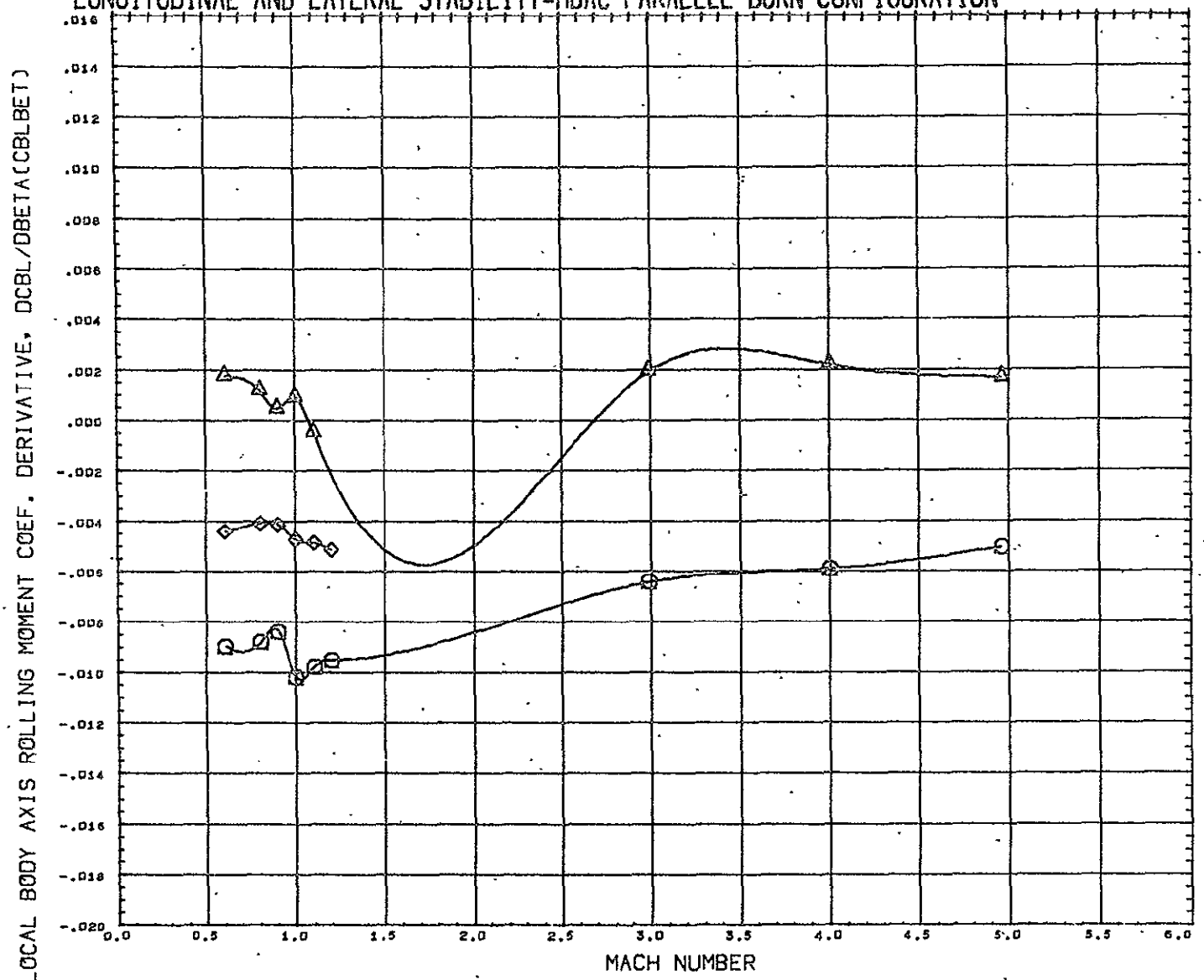
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(143012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(143022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(143002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 0.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

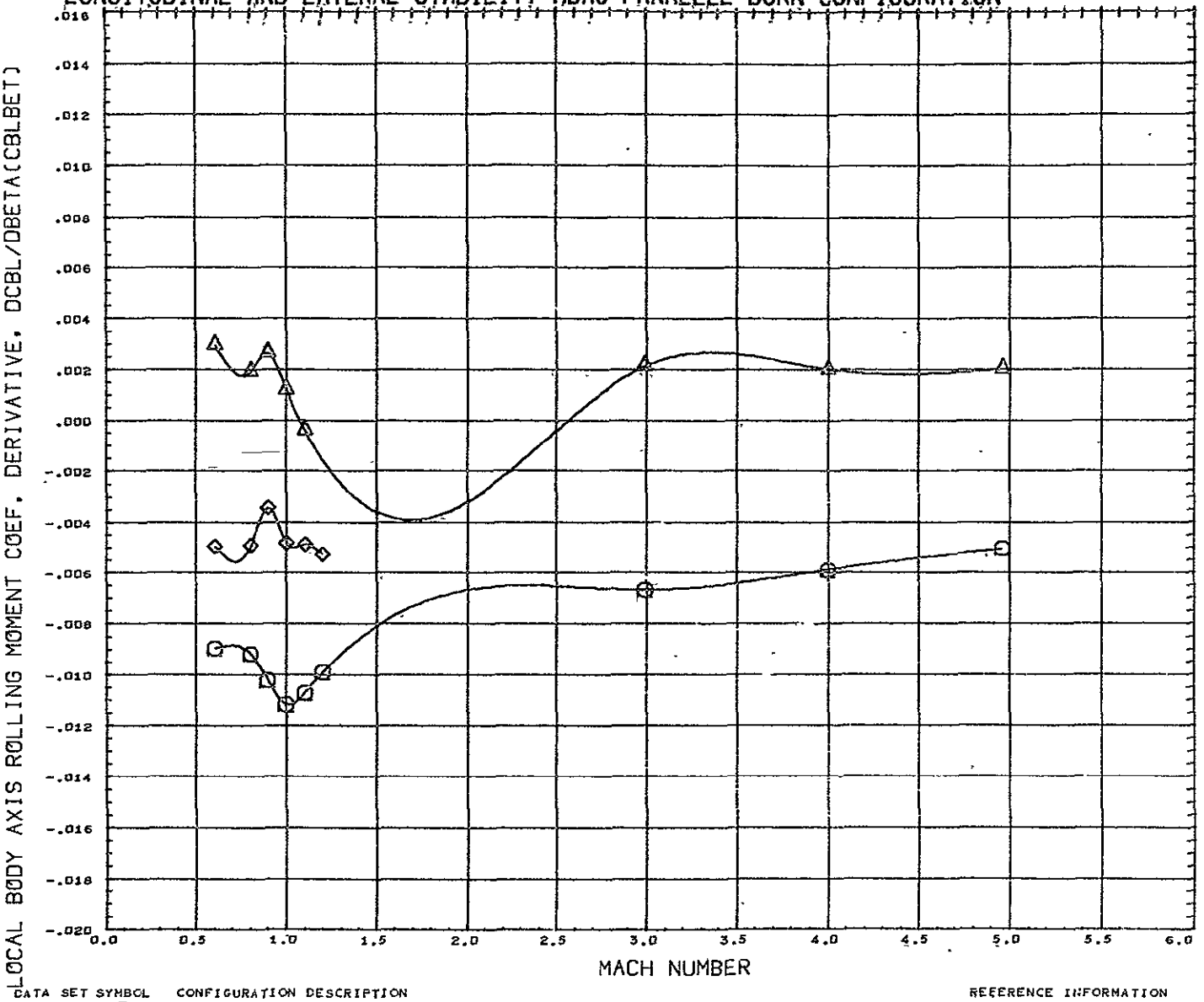


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(143012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(143022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(143002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 2.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0029	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION

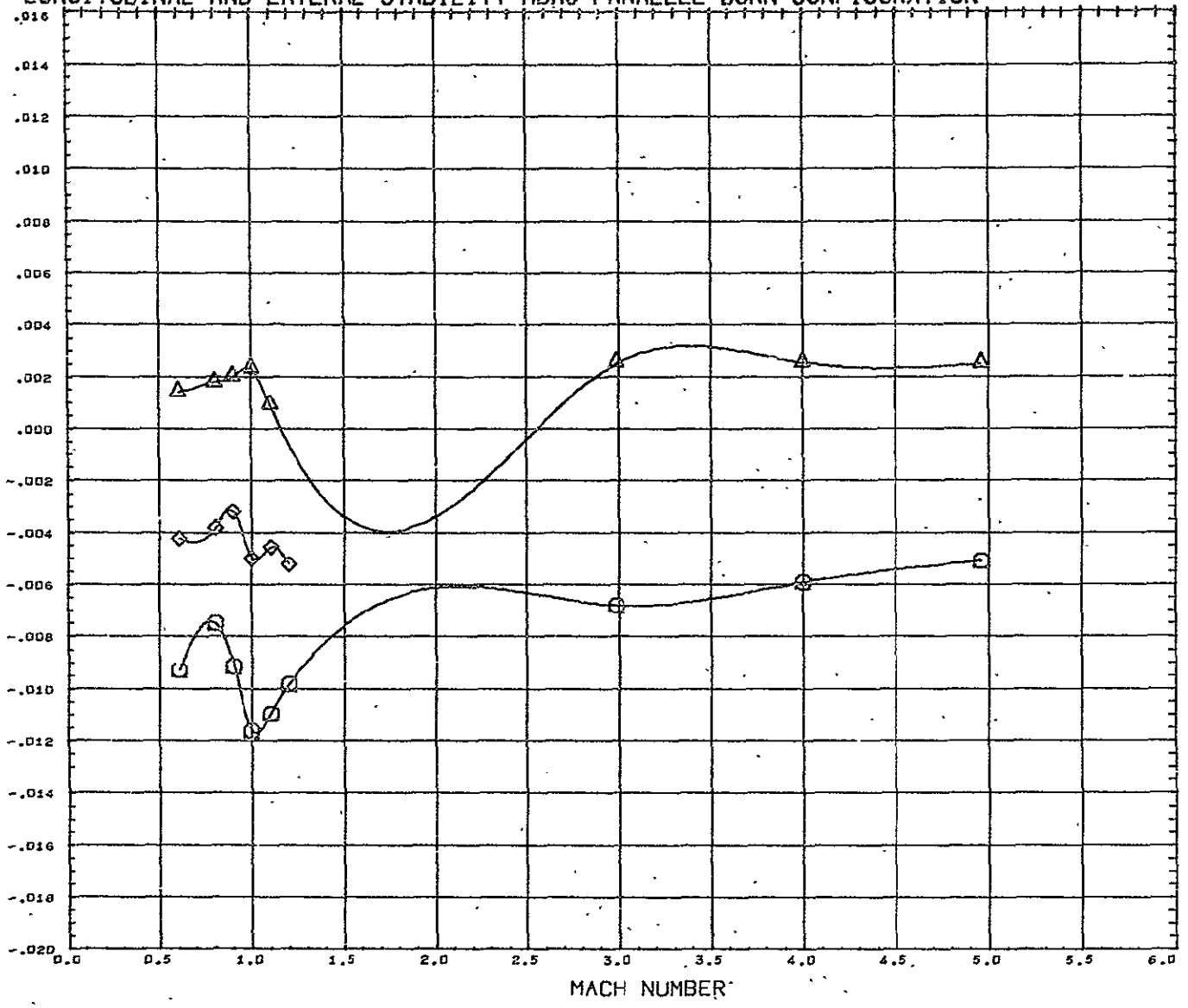


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(143012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(143022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(143002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 4.000

REFERENCE INFORMATION		
SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



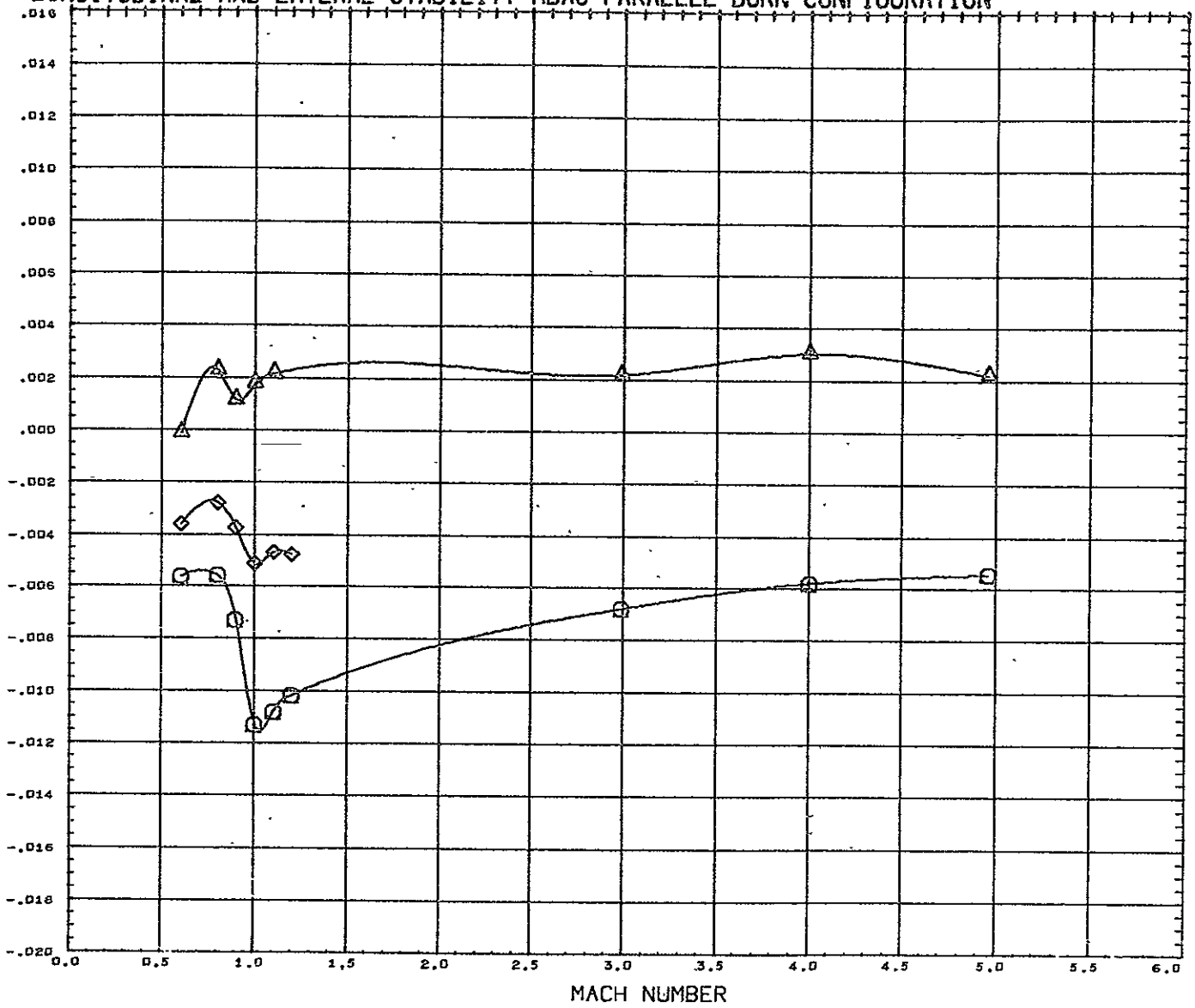
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(I43012)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(I43022)		MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(I43002)		MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 6.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



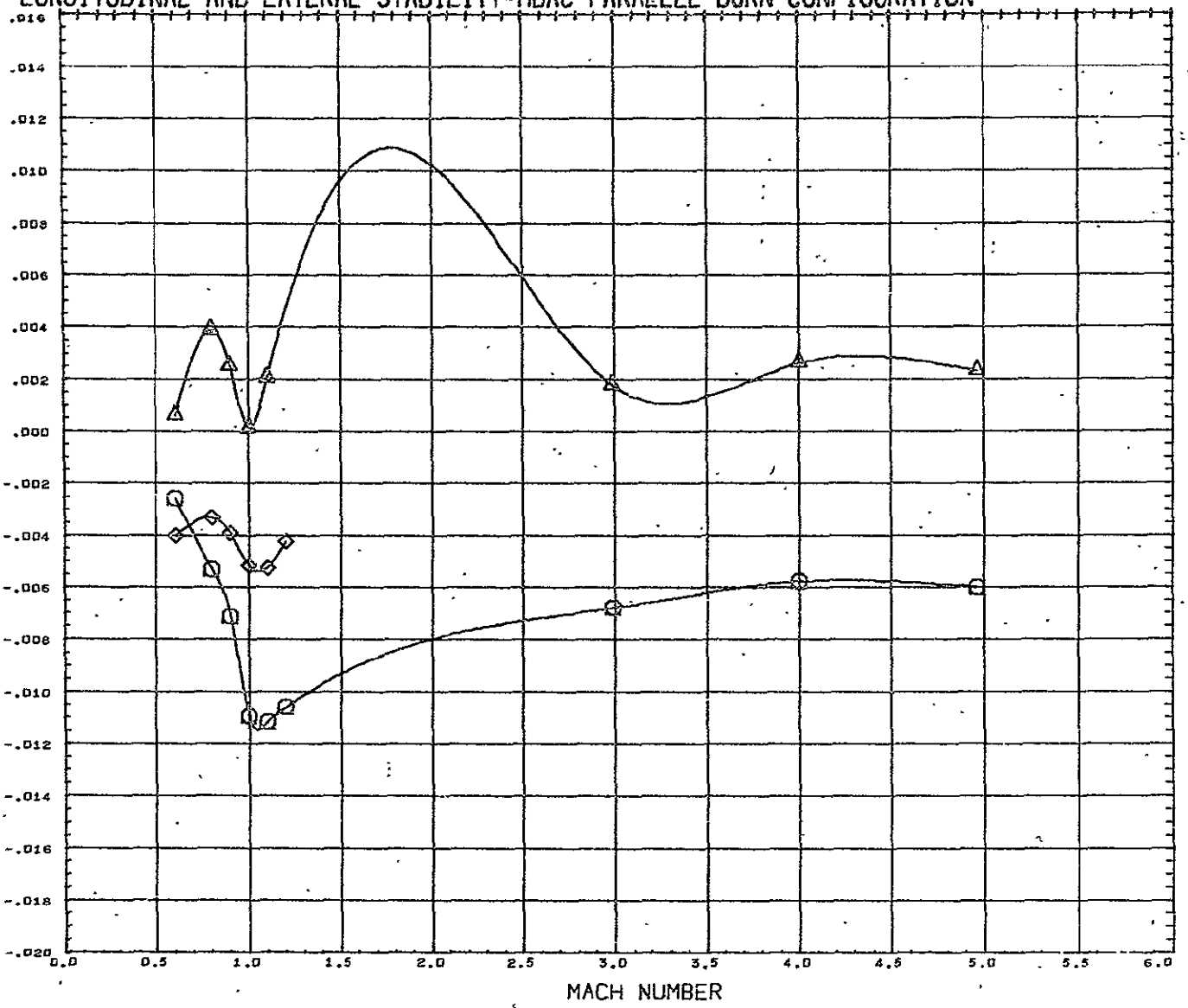
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(143012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(143022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(143002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 8.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRF	0.0000	IN.
YMRF	0.0000	IN.
ZMRF	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



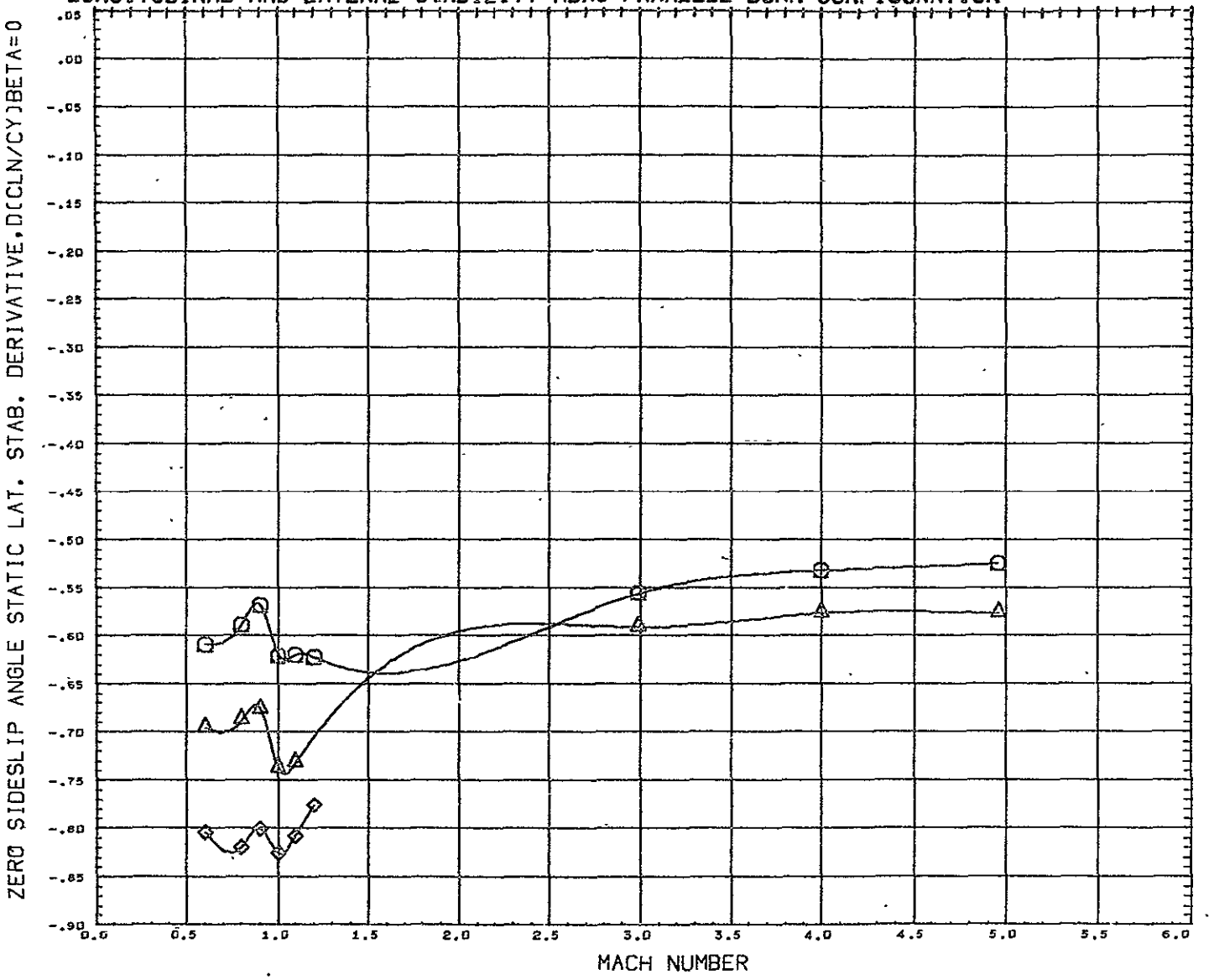
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(143012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(143022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(143002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

BETA 10.000

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	

LONGITUDINAL AND LATERAL STABILITY-MDAC PARALLEL BURN CONFIGURATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(N43012)	○	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L1
(N43022)	△	MSFC 501 MDAC PARALLEL BURN CONFIGURATION	L2
(N43002)	◇	MSFC 501 MDAC PARALLEL BURN BOOSTER	B

REFERENCE INFORMATION

SREF	4.6786	SQ.IN.
LREF	6.0278	IN.
BREF	6.0278	IN
XMRP	0.0000	IN.
YMRP	0.0000	IN.
ZMRP	0.5300	IN.
SCALE	0.0028	